

*Changes for the Better*

MITSUBISHI CNC

**Instruction Manual**  

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**NC Visualizer**

A grayscale image of the Earth from space, showing continents and clouds. Overlaid on the center of the Earth is the text "MITSUBISHI CNC" in a large, white, stylized font with a slight shadow effect. The text is split into two lines: "MITSUBISHI" on top and "CNC" below it. There are also some faint, curved lines around the text, suggesting motion or a digital interface.

**MITSUBISHI  
CNC**

**MELSOFT**  
**Integrated FA Software**

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IB-1501542(ENG)-B

# Introduction

This instruction manual describes how to use NC Visualizer. Incorrect handling may lead to unforeseen accidents, so make sure to read this instruction manual thoroughly before operation to ensure correct usage.

NC Visualizer supports the following NC series.

Appropriate NC
M700VW/M700VS/M70V/M700/M70/E70 Series M800W/M800S/M80/M80W/E80 Series




## Notes on Reading This Manual


- (1) For the specifications of individual machine tools, refer to the manuals issued by the respective machine tool builders. The "restrictions" and "available functions" described by the machine tool builders have precedence over this manual.
- (2) This manual describes as many special operations as possible, but it should be kept in mind that operations not mentioned in this manual cannot be performed.







## Precautions for Safety

Always read the specifications issued by the machine tool builder, this manual, related manuals and attached documents before installation, operation, programming, maintenance or inspection to ensure correct use. Understand this numerical controller, safety items and cautions before using the unit. This manual ranks the safety precautions into "DANGER", "WARNING" and "CAUTION".











 <b>DANGER</b> When the user may be subject to imminent fatalities or major injuries if handling is mistaken.
 <b>WARNING</b> When the user may be subject to fatalities or major injuries if handling is mistaken.
 <b>CAUTION</b> When the user may be subject to injuries or when property damage may occur if handling is mistaken.

Note that even items ranked as "  CAUTION", may lead to major results depending on the situation. In any case, important information that must always be observed is described.

The following signs indicate prohibition and compulsory.

	This sign indicates prohibited behavior (must not do). For example, "Keep fire away" is indicated by  .
	This sign indicates a thing that is critical (must do). For example, "it must be grounded" is indicated by  .

The meaning of each pictorial sign is as follows.

 <b>CAUTION</b>	 <b>CAUTION rotate object</b>	 <b>CAUTION HOT</b>	 <b>Danger Electric shock risk</b>	 <b>Danger explosive</b>
 <b>Prohibited</b>	 <b>Disassembly is prohibited</b>	 <b>KEEP FIRE AWAY</b>	 <b>General instruction</b>	 <b>Earth ground</b>

 **DANGER**





Not applicable in this manual.

 **WARNING**

Not applicable in this manual.

 **CAUTION**

**1. Items related to product and manual**

-  If the descriptions relating to the "restrictions" and "allowable conditions" conflict between this manual and the machine tool builder's instruction manual, the latter has priority over the former.
-  The operations to which no reference is made in this manual should be considered impossible.
-  This manual is compiled on the assumption that your machine is provided with all optional functions. Confirm the functions available for your machine before proceeding to operation by referring to the specification issued by the machine tool builder.
-  In some NC system versions, there may be cases that different pictures appear on the screen, the machine operates in a different way on some function is not activated.

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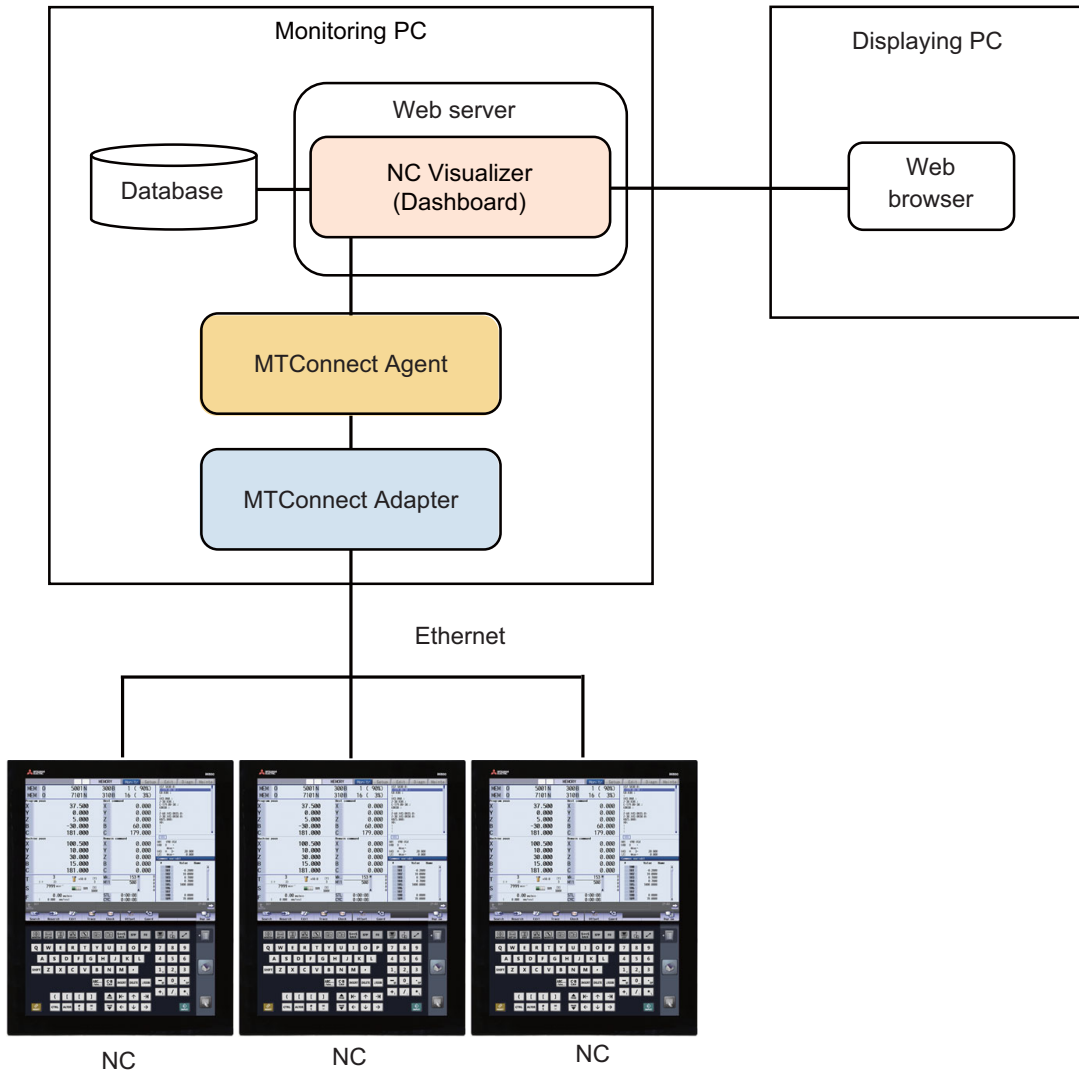
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## Outline

NC Visualizer is an operation monitoring application that visualizes the operating status of machine tools. NC Visualizer periodically collects operation information from multiple NCs that are connected via Ethernet, and sends the information through a web server to a web browser, which displays the information in a dashboard format.



(Note 1) NC Visualizer uses the port No. 8080.

(Note 2) MTConnect Adapter uses the same quantity of port Nos. as NCs to be connected in the range of 7878 to 7927 to communicate with the Agent.

(Note 3) MTConnect Agent uses the port No. 5000 by default to communicate with the dashboard screen.

## **NC Visualizer License**

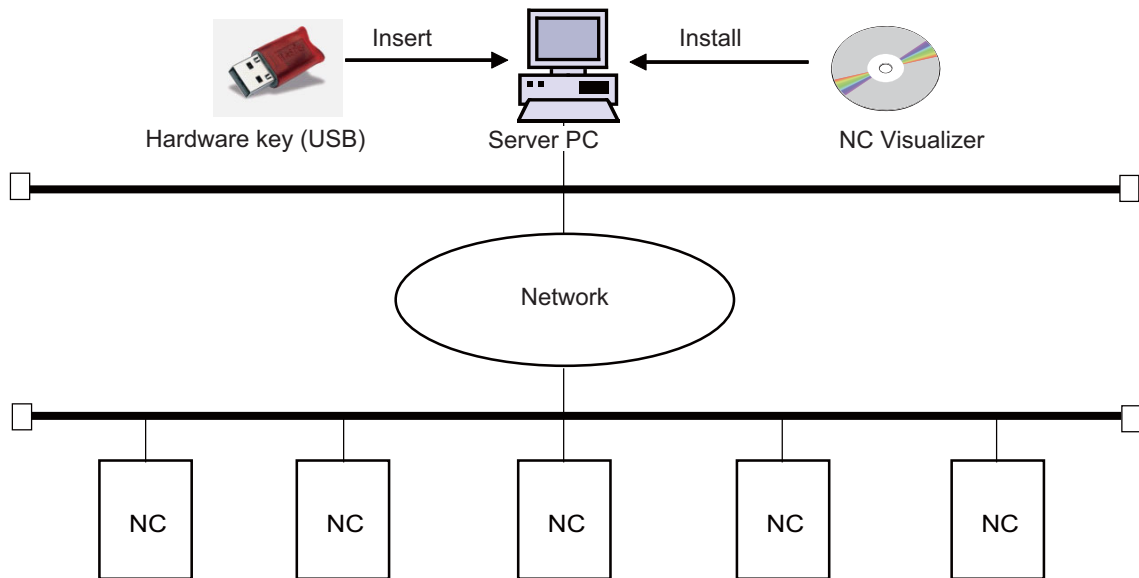
## 2.1 NC Visualizer Licensing

A hardware key needs to be inserted in the USB port of your PC (server PC) to display the information of the NC machine tools on the NC Visualizer screen.

- The maximum number of NC units that can be displayed simultaneously in NC Visualizer is specified in the license agreement (\*1).

- Information on the licensed number of NC units can be viewed only on a PC with the hardware key inserted.

(\*1) The maximum number of NC units is 5, 10 or 30.



(Note) Insert only one hardware key in a PC.

## **Operating Environment**

### 3.1 NC Visualizer Operating Environment

NC Visualizer minimum system requirements

Item	Details
OS	Windows 7 SP1/8.1/10 (Version 1709, 1803) (64-bit)
Java execution environment	Java Runtime Environment 8 (JRE8)
.NET Framework	4.6
CPU	Intel Core i3 2Core 3.0 GHz or faster
HD	For installation: 4 GB or more * Some capacity for database and log data is also needed, depending on the number of NC units to be connected. A capacity of 16 GB or more is recommended for installation.
Memory	8 GB or more

### 3.2 Operating Environment of the Dashboard

Tested environments

Item	Details
Browser	Microsoft Edge (Version: 38.14393.2068.0) Internet Explorer 11 (Version: 11.2189.1439.0) Google Chrome (Version: 65.0.3325.181)
Supported languages	Japanese, English, Chinese (Simplified), Chinese (Traditional)

\* Note that the tested environments described here do not guarantee the product operation in the future.

# 4

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## Terms



The definitions of the terms used in this manual are given below.

<b>Term</b>	<b>Description</b>
Dashboard	The function that displays the data obtained from the web server on a web browser of a client device (PC, tablet, or smartphone) in a graphical format. This term is also used to describe the actual dashboard screen.
Web server	A service program that displays HTML documents or images in response to a request from a web browser.
Database	It refers to a collection of data or the system itself, which organizes and stores the data easy to be searched and used. The data obtained from NCs are stored.
MTConnect	The communication protocol for machine tools for which MTConnect Institute has defined standards.
MTConnect Agent	The software to collect data that MTConnect Adapter retrieved from machine tools (NC), and delivers that data to the dashboard screen.
MTConnect Adapter	The software that communicates with machine tools (NC) to retrieve data, and deliver that data to MTConnect Agent.

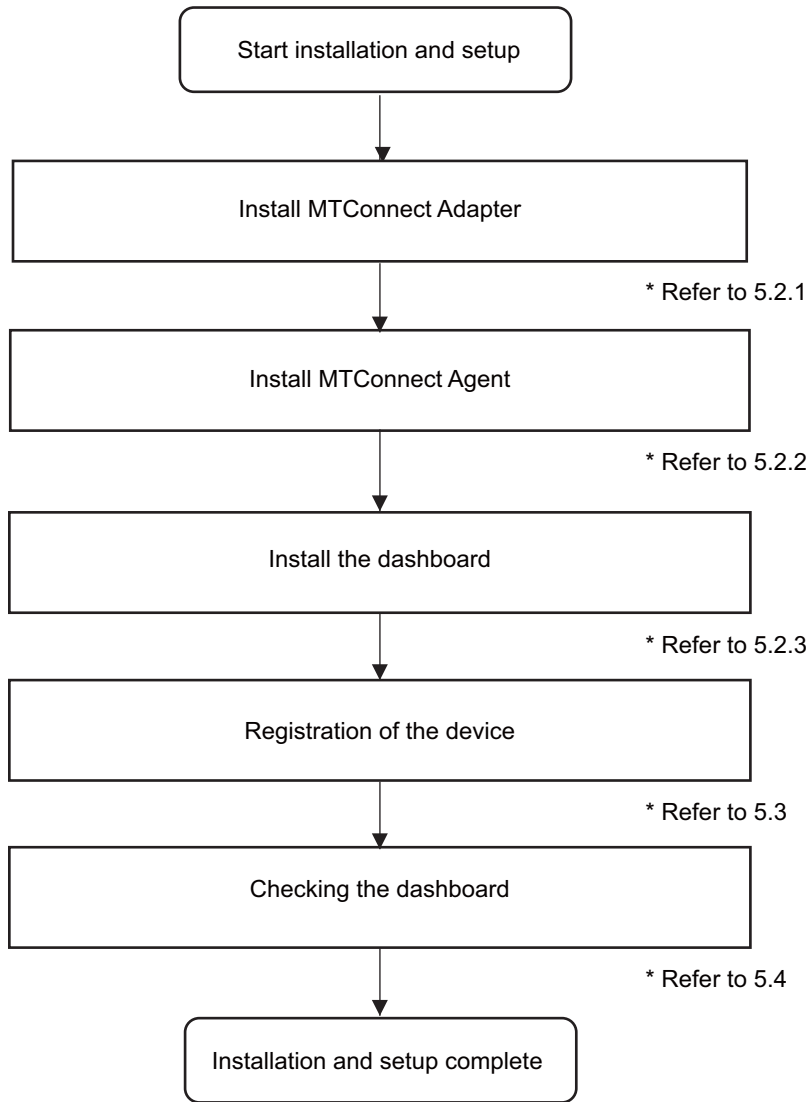
# 5

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## Installation and Setup

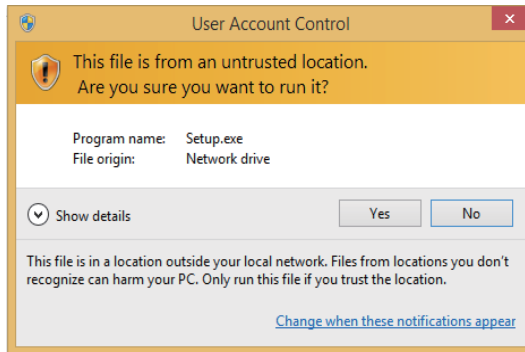
### 5.1 Installation Outline

Follow the chart indicated below, install and set up NC Visualizer.



## 5.2 Installation Procedures

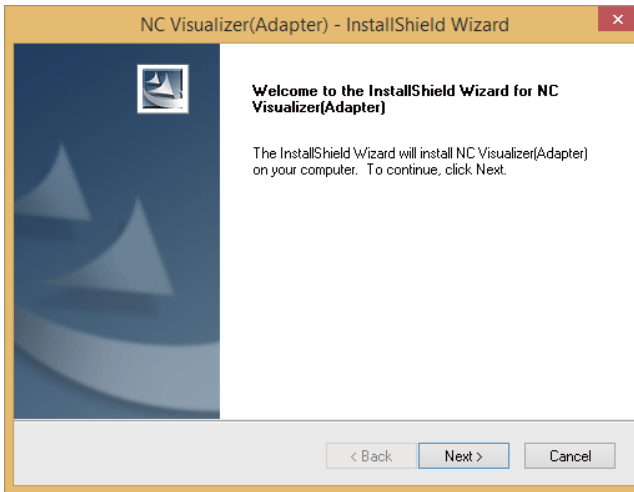
- (1) Insert the NC Visualizer installation CD into the CD-ROM drive of the PC (Server PC).
- (2) Run the "Setup.exe" file in the installation CD.
  - \* Install all the software with an administrator account.
  - \* The installation screens are in Japanese when installing in a Japanese version of Windows, and in English when installing in a version of Windows other than Japanese.
  - \* When user account control is enabled for Windows 7, Windows 8.1, or Windows 10, the confirmation dialog below appears. Click [Yes] to start installation.



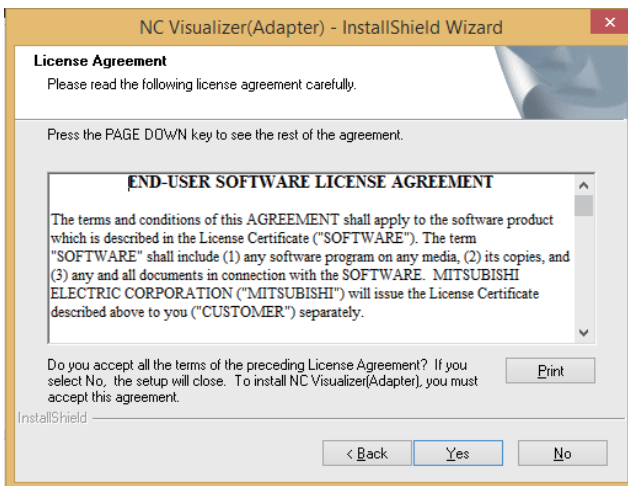
- (3) Each installer starts up in order of "MTConnect Adapter" "MTConnect Agent" and the dashboard screen, follow the instruction on the screen to install them.

### 5.2.1 Installing MTConnect Adapter

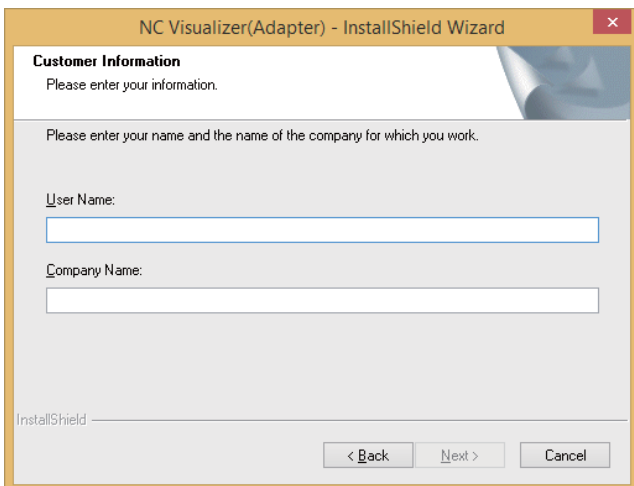
- (1) A splash screen appears as the installer starts up.
- (2) The setup screen appears. Click [Next].



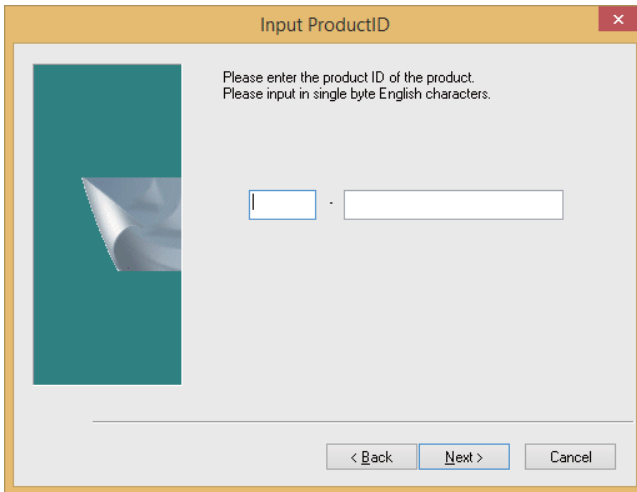
- (3) The end-user software license agreement appears. Read the contents carefully before clicking [Yes]. When [No] is clicked (you do not accept the agreement), the installation is cancelled.



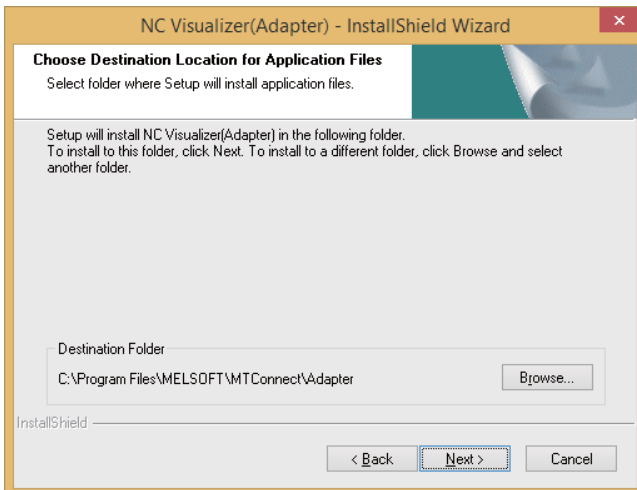
- (4) The customer information dialog appears. Enter the user name and company name, and click [Next].



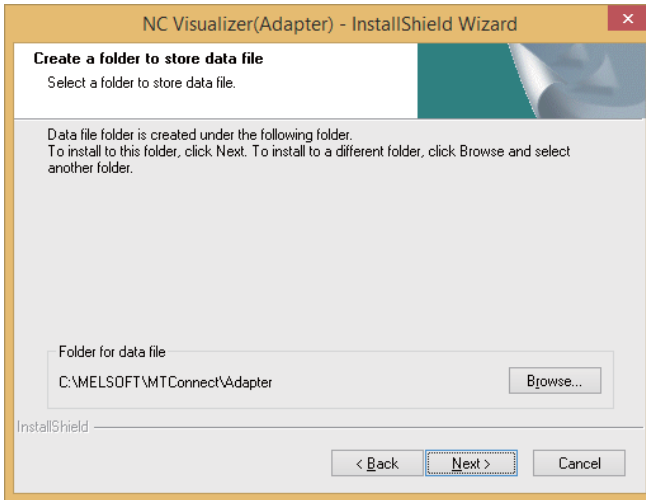
- (5) Enter the product ID on "Input ProductID" screen, and click [Next].



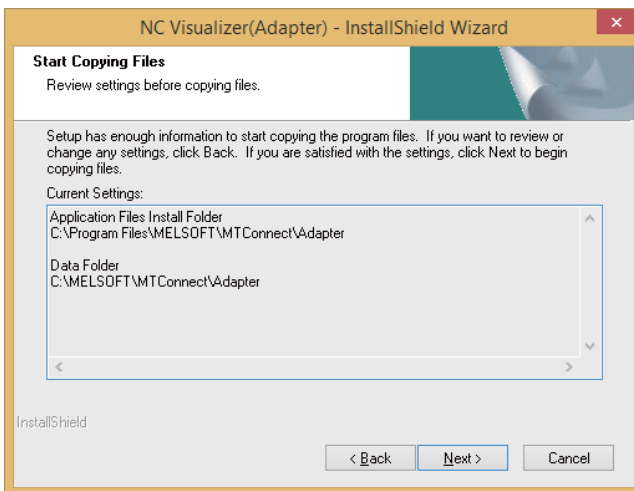
- (6) The screen for selecting the destination location appears. To change the destination location, click [Browse] and select a new destination folder. After setting the destination, click [Next].



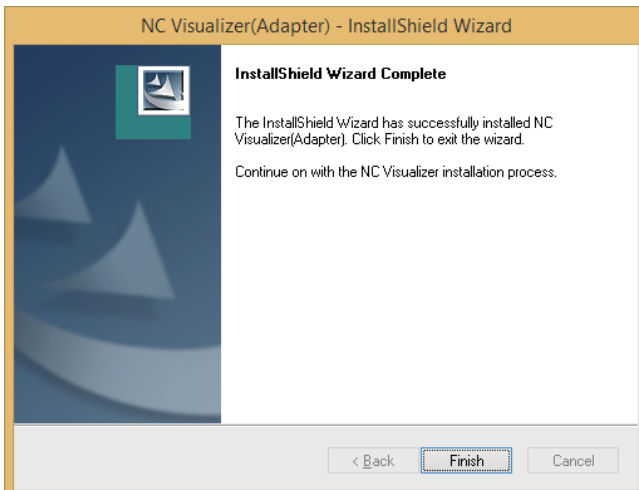
- (7) The screen for selecting the folder to store data file appears. To change the folder, click [Browse] and select a new destination. After setting the folder to store data file, click [Next].



- (8) The information for the installation is displayed. After checking the settings, click [Next] to start the installation.

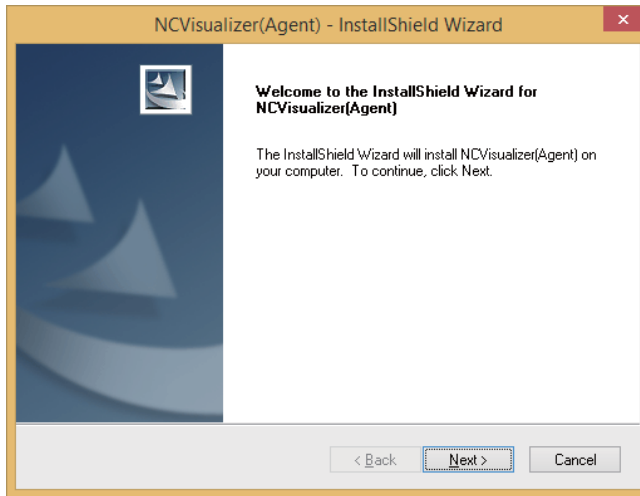


- (9) When the installation is successfully completed, the "InstallShield Wizard Complete" screen appears. Click [Finish] to end the installation.

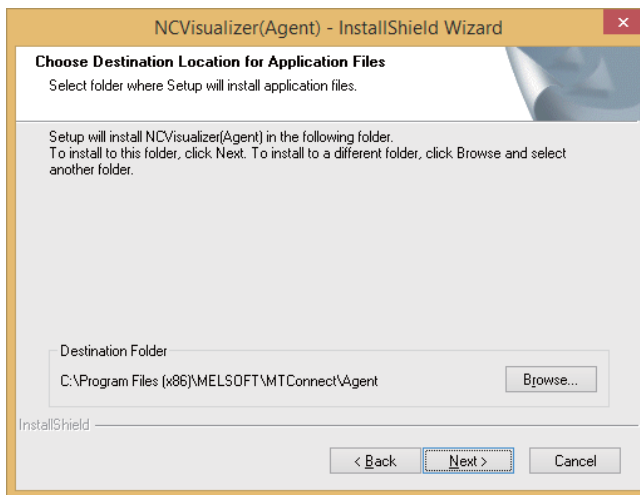


### 5.2.2 Installing MTConnect Agent

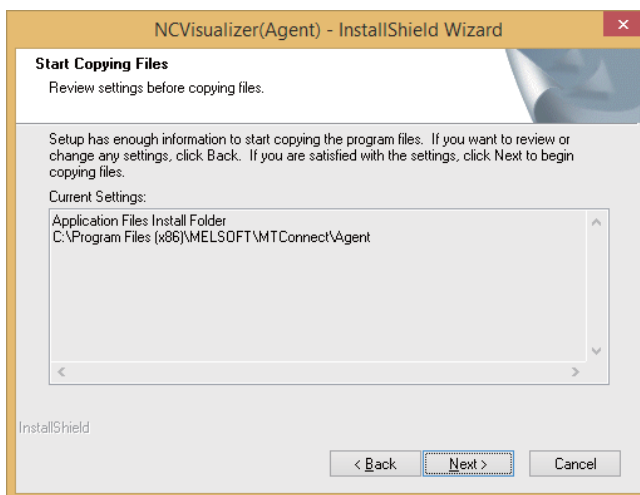
- (1) The setup screen appears. Click [Next].



- (2) The screen for selecting the destination location appears. To change the destination location, click [Browse] and select a new destination folder. After setting the destination, click [Next].

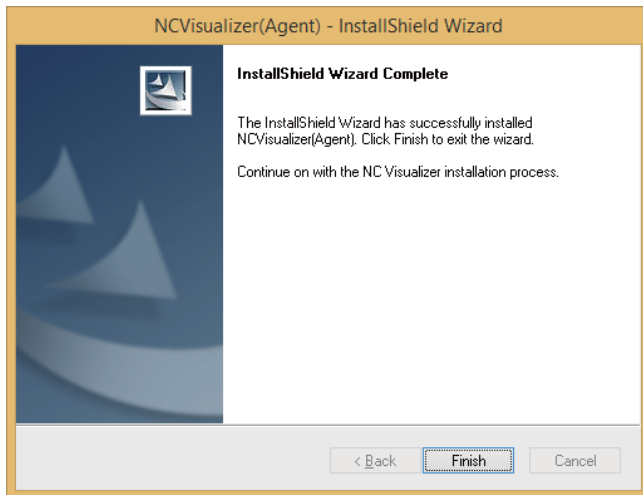


- (3) The information for the installation is displayed. After checking the settings, click [Next] to start the installation.



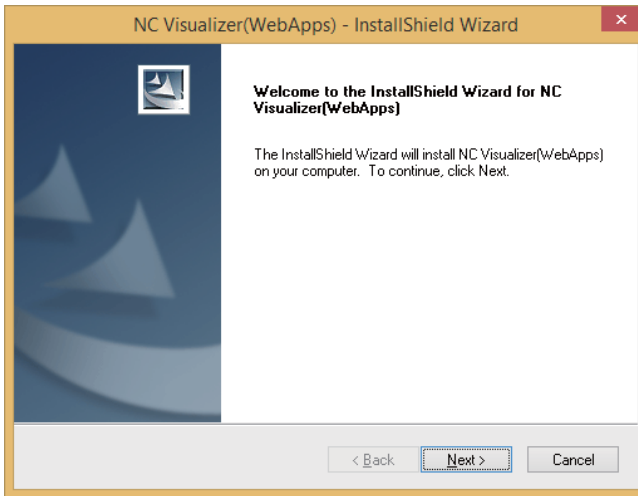


- (4) When the installation is successfully completed, the "InstallShield Wizard Complete" screen appears. Click [Finish] to end the installation.

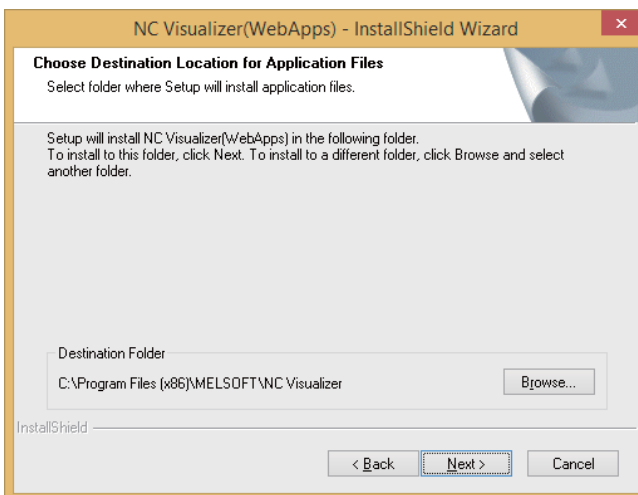


### 5.2.3 Installing the Dashboard

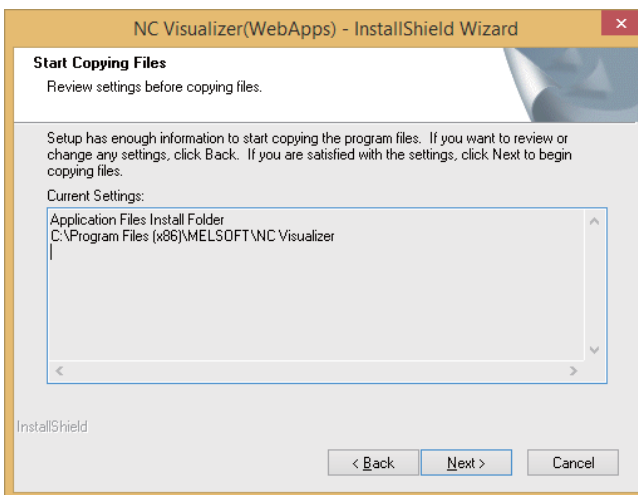
- (1) The setup screen appears. Click [Next].



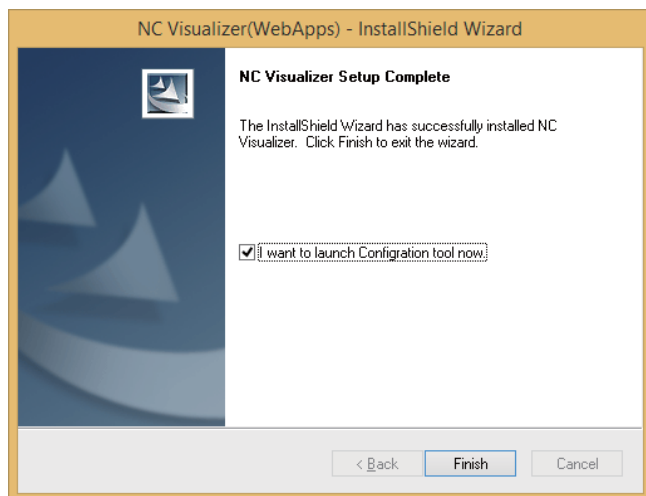
- (2) The screen for selecting the destination location appears. To change the destination location, click [Browse] and select a new destination folder. After setting the destination, click [Next].



- (3) The information for the installation is displayed. After checking the settings, click [Next] to start the installation.



- (4) When the installation is successfully completed, the "NC Visualizer Setup Complete" screen appears. Click [Finish] to end the installation.



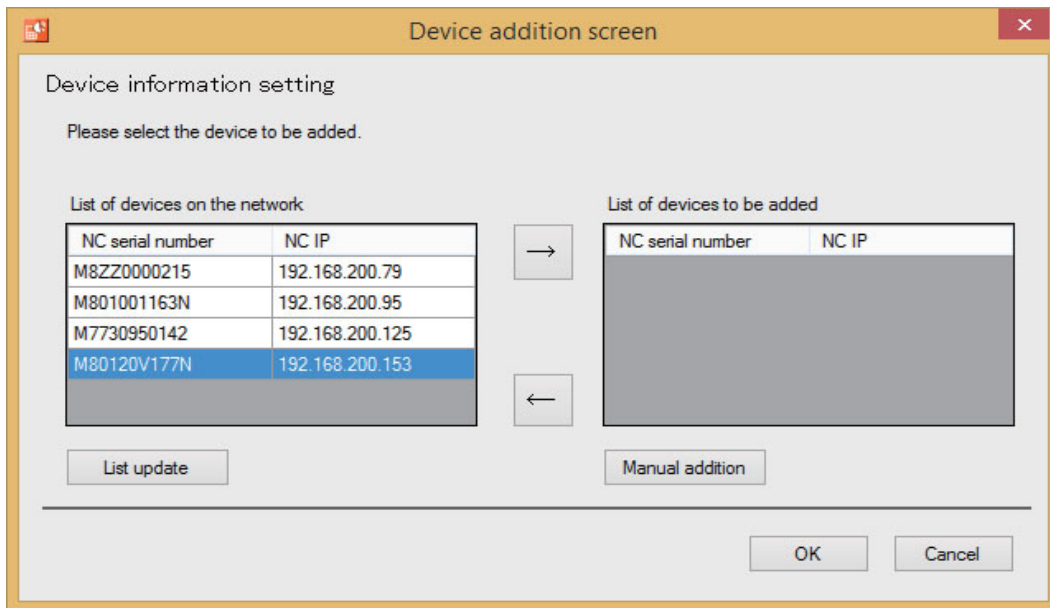
- \* Click [Finish] to start up NC Visualizer device information registration tool by default. Remove the check mark not to start the tool up.  
Refer to "5.3 Registering Devices" for details of the device information registration tool.

### 5.3 Registering Devices

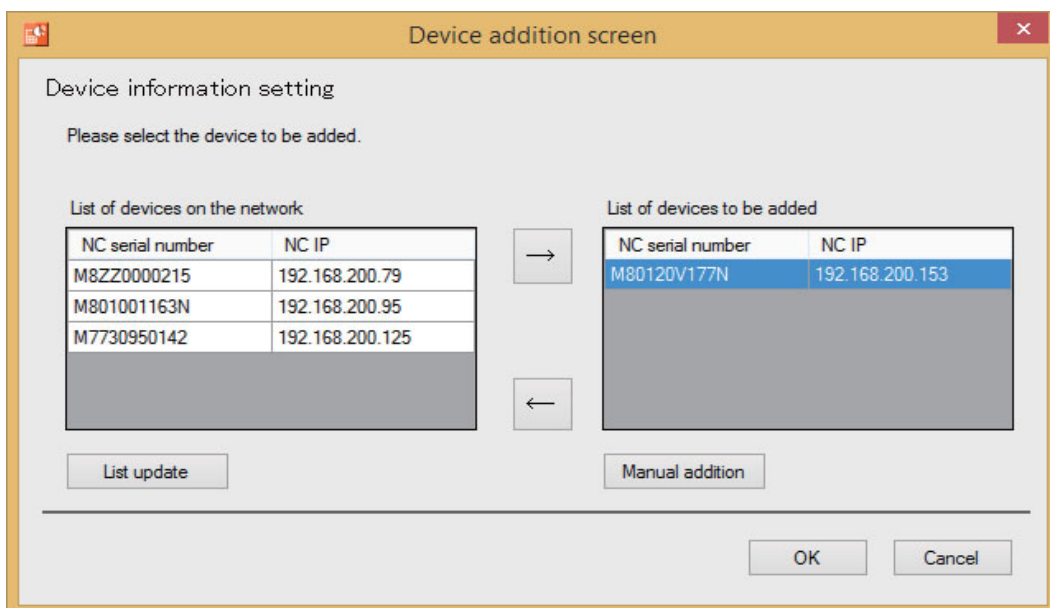
Start up the device information registration tool after the installation, configure the settings of devices to be connected to NC Visualizer and to be displayed on it.

\* When you removed the check mark on "NC Visualizer Setup Complete" screen, perform from step (1) indicated below. When you did not remove the check mark, perform from step (2).

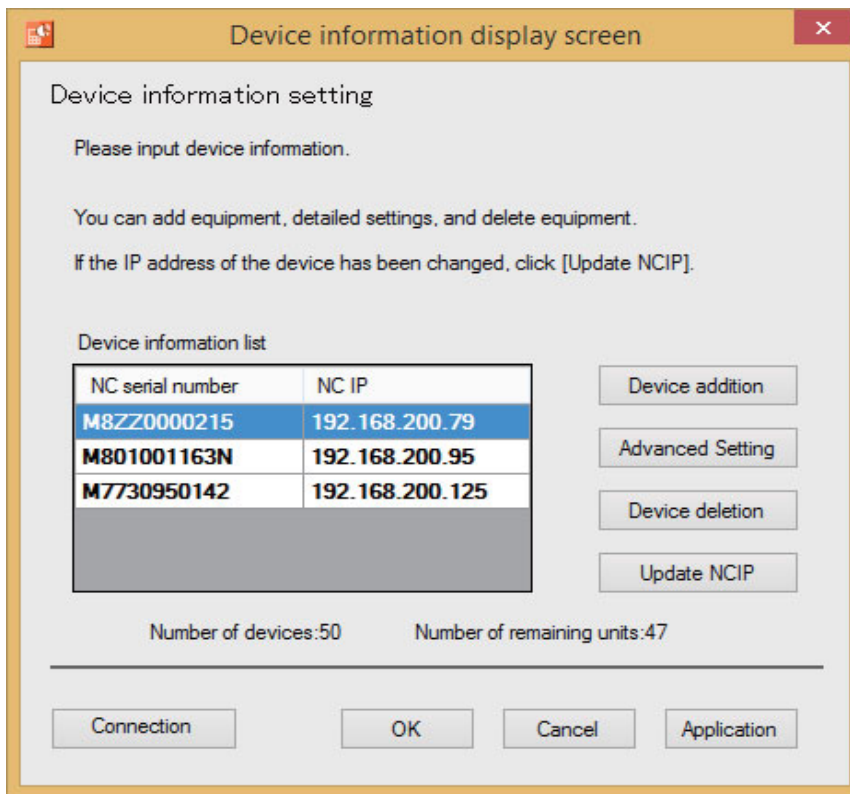
- (1) Click [Start Menu] - [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Configuration].
- (2) Start up the device information registration tool, and then click [Device addition].
- (3) NCs on the same network are displayed in "List of devices on the network". Select the device to be connected to NC Visualizer and to be displayed on it, then click [->] button.



- (4) Selected NC is displayed in "List of device to be added". Repeat step (3) to add all NCs to be connected to NC Visualizer and to be displayed on it. Click [OK] after all NCs are added.



- (5) Click [OK] to finish the device information registration tool after confirming NCs to be connected.



- \* An error dialog may be displayed due to the status of communication environment when step (2) or (3) is performed.  
Refer to "7.2.1 Adding Devices" for details.

## 5.4 Dashboard Confirmation

Check that the dashboard screen is displayed on web browser properly.

- (1) Insert the hardware key supplied with NC Visualizer to the PC (Server PC) in which NC Visualizer has been installed.
- (2) Display the dashboard screen referring to "6.2.1 Starting Up a Browser".

(Note 1) To check that dashboard screen is displayed on the PC in which NC Visualizer has been installed, select [Start Menu] - [All Programs] - [MELSOFT Application] - [NC Visualizer] - [To NC Visualizer].

(Note 2) When the dashboard is not displayed correctly, start the NC Visualizer diagnosis tool by selecting [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Diagnosis] from the start menu. The tool can specify the cause of the problem. Refer to "8.2.1 Starting the Diagnosis" for details to operate the tool.

## 5.5 Changing the Settings

The settings of NC Visualizer can be changed using the device information registration tool.

Refer to "7.2 Operating Procedures" for details on adding or deleting devices, and changing IP addresses.

## 5.6 Uninstallation

NC Visualizer can be uninstalled from the control panel.

Select [Control Panel] - [Programs] - [Uninstall a program] - [NC Visualizer], uninstall NC Visualizer.

(Note) Each application belongs to NC Visualizer is being installed individually. All applications must be deleted to uninstall NC Visualizer completely.



## NC Visualizer Dashboard



## 6.1 Outline

The NC Visualizer Dashboard (hereafter dashboard) displays XML data obtained from NCs in a graphical format on the browser. Dashboard also can also display data history by using the DB connection tool to accumulate data.

The following functions are available.

<b>Function</b>	<b>Description</b>
Device	Displays a list of the devices that are monitored.
Operation	Displays the operation status of a device selected from the list on the device screen.
Result	Displays a list of the operation results of the devices being monitored.
Use	Displays the power consumption amount, and temperature information.
Alarm	Displays the details of alarms that are occurring.

## 6.2 Operating Procedures

Follow procedures 6.2.1 to 6.2.3 to display the dashboard.

### 6.2.1 Starting Up a Browser

Start a browser on the PC (monitoring PC, tablet or smartphone), and connect to the following address.

Address:

http://[host]:8080/nc/index.html (\*1) (\*2)

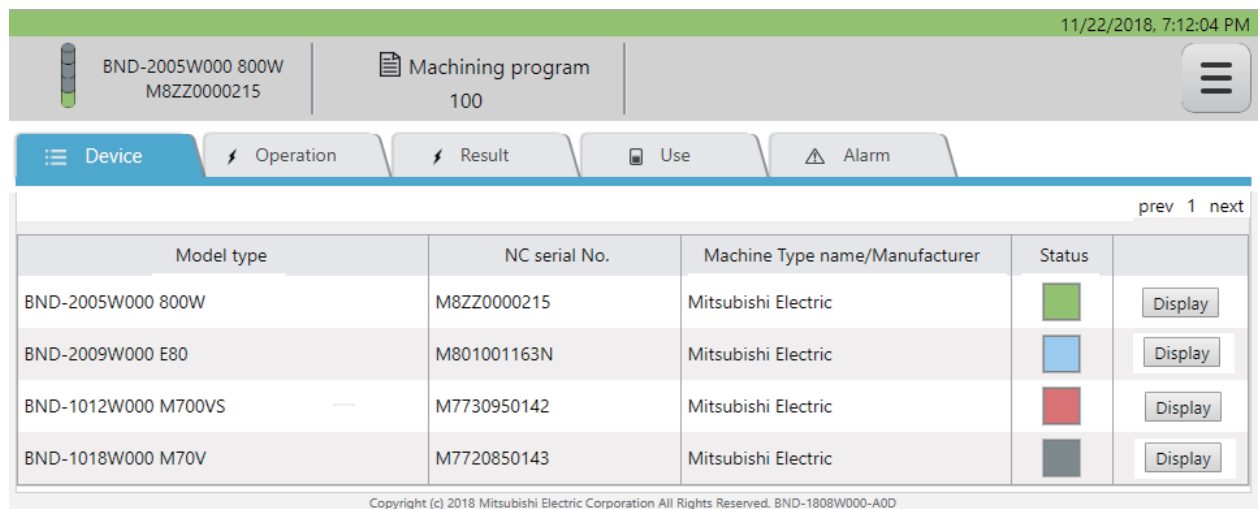
(\*1) index.html may be omitted.

(\*2) Set the web server IP address to [host].

(Example http://\*\*\*.\*\*\*.\*\*\*.\*\*\*:8080/nc)

Refer to "5. Installation and Setup" for details."

When connecting to the above address, the device screen (below) appears.

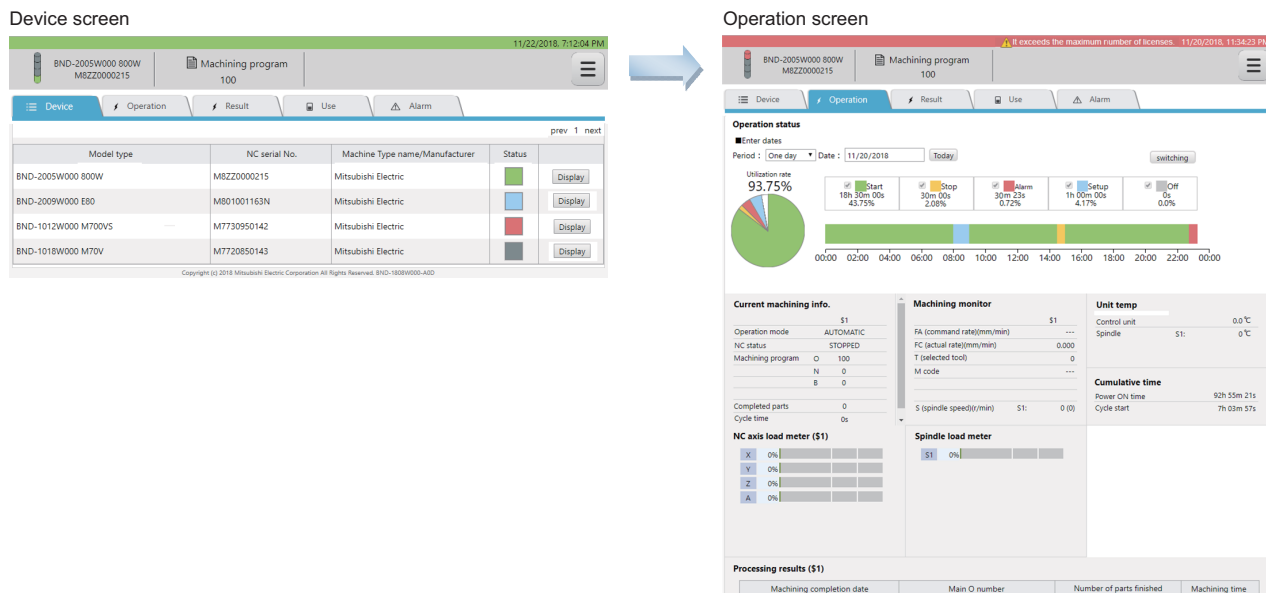


### 6.2.2 Device Selection

With the device screen showing, click the [Display] button of a device to check the operation status. The screen changes to the operation screen.

Changing from the device screen to the operation screen is also possible by the following methods:

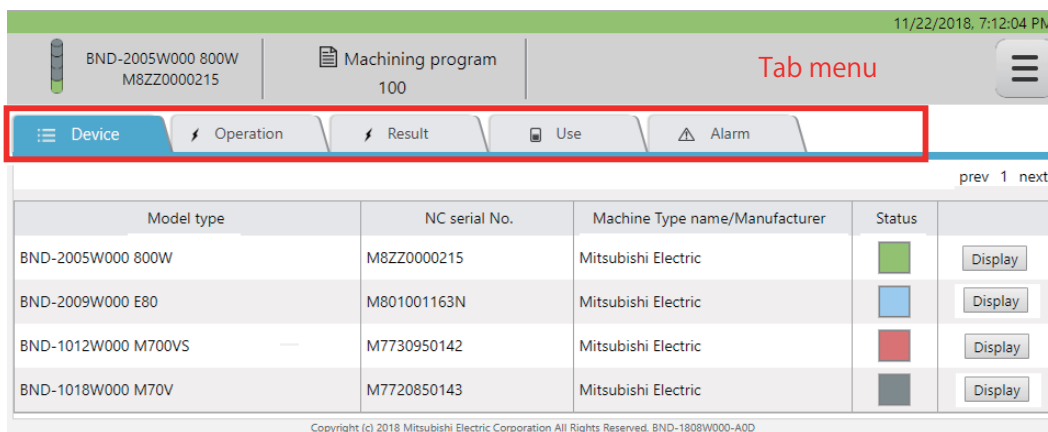
- When using a PC: Double-click the line
- When using a smartphone/tablet: Tap the line



### 6.2.3 Changing Screens

Change screens by clicking the "tab menu".

When the browser is started (initial status), the device screen is shown, and the tabs other than [Device] and [Result] are disabled (cannot be selected). After following the procedure in "6.2.2 Device Selection" and changing to the operation screen, all tabs are enabled (can be selected).



The tab menu status is shown below.


Displayed tab	Tab menu status	
	At initial startup	After device selection
Device	Enabled	Enabled
Operation	Disabled	Enabled
Result	Disabled	Enabled
Use	Disabled	Enabled
Alarm	Disabled	Enabled

## 6.3 Details of Each Function

This section describes the specifications of each screen.

The contents of each screen are refreshed every 500 milliseconds.

### 6.3.1 Setting the Display

Clicking the  icon on the device screen opens the display setting screen.

Select the display language from the pull-down menu.



The following display languages can be set.

Item	Setting	Default setting	Remarks
Language (Display language)	Japanese (*1) English Chinese (Simplified) (*1) Chinese (Traditional) (*1)	Matches with the OS locale (*2) (*3)	Japanese, English, Chinese (Simplified) and Chinese (Traditional) are available.

(\*1) When the OS of the displaying device does not support the display language, the text is corrupted and it is not displayed correctly.

(\*2) Japanese OS: Japanese  
Chinese OS: Chinese

OS other than Japanese and Chinese: English

(\*3) The display format of the date and time for each display language is shown below.

Language	Display format (*4)	Example
Japanese	YYYY/M/D HH:MM:SS	2018/1/6 14:48:33
	YYYY 年 M 月 D 日 HH:MM:SS	2018 年 1 月 6 日 14:48:33
English	M/D/YYYY, HH:MM:SS XM	1/6/2018, 2:48:33 PM
	M/D/YYYY HH:MM:SS XM	1/6/2018 2:48:33 PM
Chinese (Simplified) Chinese (Traditional)	YYYY/MM/DD XM HH:MM:SS	2018/1/6 下午 2:48:33
	YYYY 年 M 月 D 日 HH:MM:SS	2018 年 1 月 6 日 14:48:33

(\*4) Display may differ depending on the browser used.

### 6.3.2 Device Screen

The device screen shows the operation status of the devices that are monitored in a list.

When moving the cursor over the list, the color of the mouse cursor changes so that the position of the mouse is easy to track.

Up to 20 devices can be displayed per page.

Use the browser's [back] and [forward] buttons to move to pages previously selected.

When accessing the dashboard from the browser for the first time, a license check is required. If the license check fails, the screen is disabled.

Also, when the number of connecting devices exceeds the number of devices specified in the license agreement, the devices are displayed in the order that they are registered on the XML schema definition file, but only for the number of devices specified in the license agreement.

Device screen (PC)

The screenshot shows the PC interface for the 'Device' screen. At the top, there is a header bar with a green background on the left and a grey background on the right. The green part contains a battery icon and the text 'BND-2005W000 800W M8ZZ0000215'. The grey part contains a document icon and the text 'Machining program 100'. On the far right of the header, the date and time '11/22/2018, 7:12:04 PM' are displayed. Below the header is a navigation bar with five tabs: 'Device' (selected), 'Operation', 'Result', 'Use', and 'Alarm'. Below the navigation bar is a table with the following columns: 'Model type', 'NC serial No.', 'Machine Type name/Manufacturer', 'Status', and an empty column. The table contains four rows of device data. To the right of the 'Status' column, there are 'Display' buttons for each row. Callouts (1) through (6) point to the navigation bar, the table, the 'Display' buttons, and the header information.

Model type	NC serial No.	Machine Type name/Manufacturer	Status	
BND-2005W000 800W	M8ZZ0000215	Mitsubishi Electric	Green	Display
BND-2009W000 E80	M801001163N	Mitsubishi Electric	Blue	Display
BND-1012W000 M700VS	M7730950142	Mitsubishi Electric	Red	Display
BND-1018W000 M70V	M7720850143	Mitsubishi Electric	Grey	Display

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Device screen (smartphone)

The screenshot shows the smartphone interface for the 'Device' screen. The layout is vertical. At the top, there is a header bar with a green background on the left and a grey background on the right. The green part contains a battery icon and the text 'BND-2005W000 800W M8ZZ0000215'. The grey part contains a document icon and the text 'Machining program 100'. Below the header is a navigation bar with five tabs: 'Device' (selected), 'Operation', 'Result', 'Use', and 'Alarm'. Below the navigation bar is a list of device information with the following columns: 'Model type', 'NC serial No.', 'Machine Type name/Manufacturer', 'Status', and an empty column. The list contains four entries of device data. To the right of the 'Status' column, there are 'Display' buttons for each entry. The bottom of the screen shows a navigation bar with five tabs: 'Device' (selected), 'Operation', 'Result', 'Use', and 'Alarm'.

Model type	NC serial No.	Machine Type name/Manufacturer	Status	
BND-2005W000 800W	M8ZZ0000215	Mitsubishi Electric	Green	Display
BND-2009W000 E80	M801001163N	Mitsubishi Electric	Blue	Display
BND-1012W000 M700VS	M7730950142	Mitsubishi Electric	Red	Display
BND-1018W000 M70V	M7720850143	Mitsubishi Electric	Grey	Display

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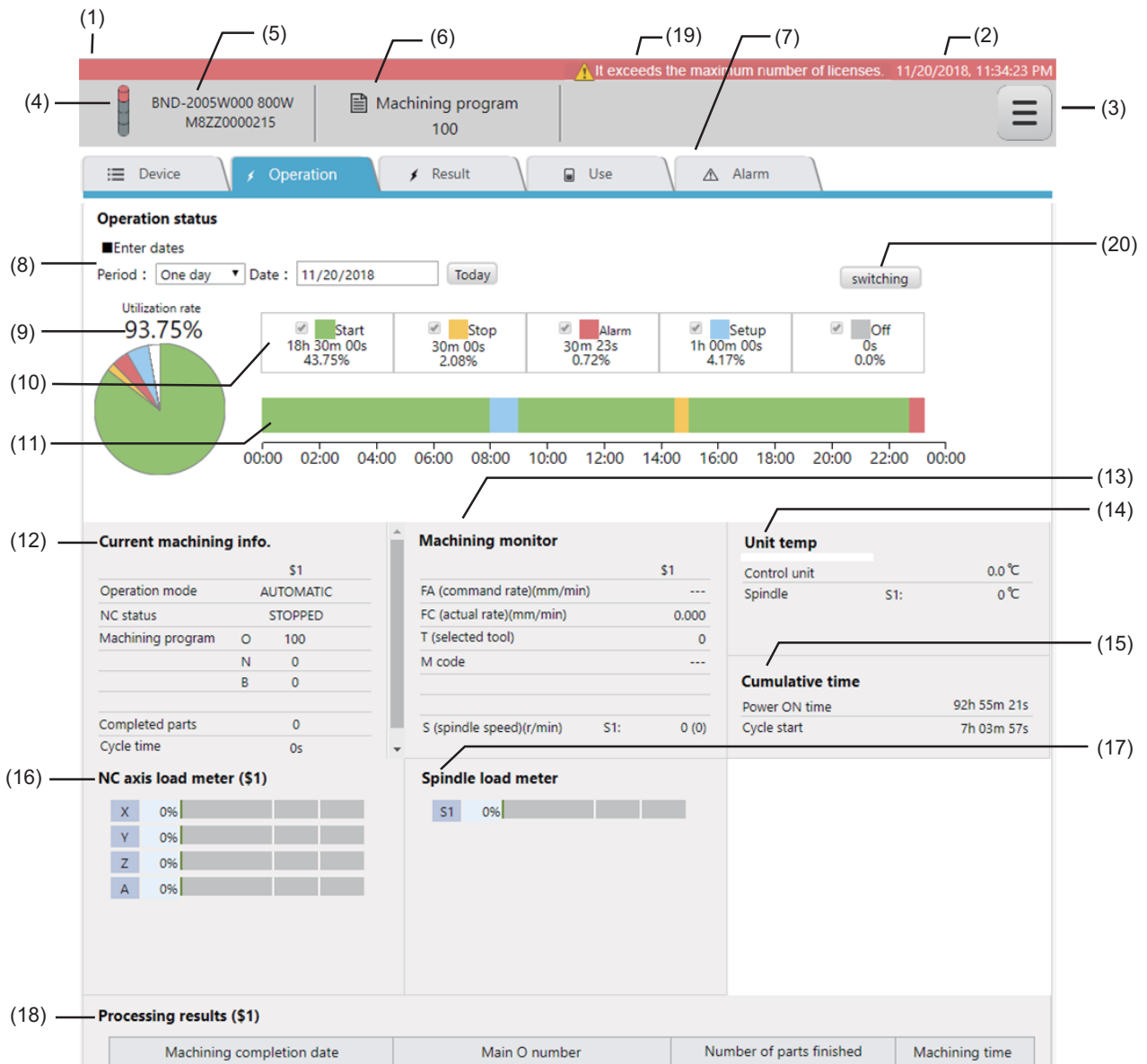
**Display items**

No.	Item	Details		
(1)	Tab menu	Click a tab to change screen. Refer to "6.2.3 Changing Screens" for details.		
(2)	Model type	Displays the model type.		
(3)	NC serial No.	Displays the NC serial No.		
(4)	Machine type name/Manufacturer	Displays the type name/manufacturer of the machine.		
(5)	Status	Operation status is indicated by five colors.		
		Operation status	Display color	Details
		Operating	Green	Automatic operation
		Stop	Yellow	Stopped during automatic operation
		Alarm stop	Red	Stopped due to an alarm
		Stand-by	Blue	Before automatic operation
		Power OFF	Grey	Power is OFF, or communication is not made.
		[Operating]		Control device is being in automatic operation. ("Alarm stop" takes precedence over this status.)
		[Stop]		Control device is being stopped or paused during automatic operation.
		[Alarm stop]		Control device is being stopped during an alarm occurrence (operation alarm, program error, servo alarm, system alarm or PLC alarm).
[Stand-by]		The status other than that indicated above		
[Power OFF]		The power of control device is OFF, or the communication with the device is not made.		
(6)	Display button	Clicking the display button changes the screen to the operation screen.		

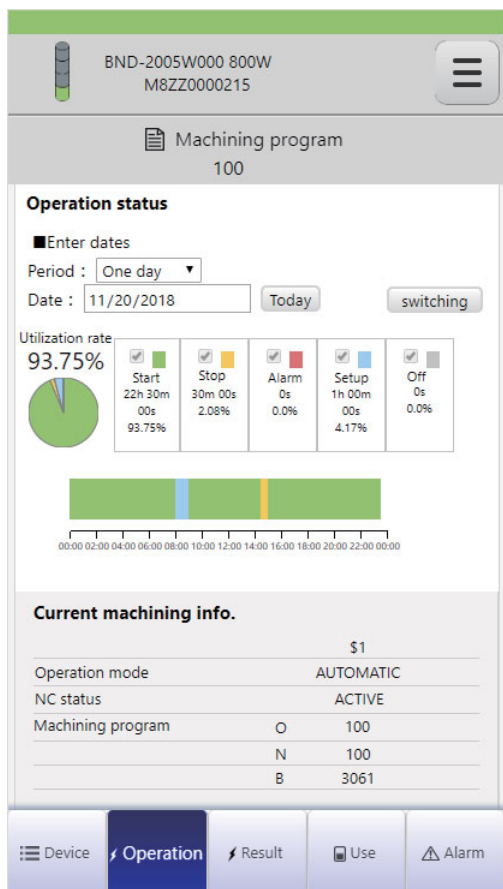
### 6.3.3 Operation Screen

The operation screen shows the operation status of the device selected (clicked [Display] button) on the device screen.

Operation screen (PC)





Operation screen (smartphone)






**Display items**

No.	Item	Details				
(1)	Alarm information	The information of one alarm is displayed at the top left of the screen.				
		<ul style="list-style-type: none"> <li>■ Alarm messages</li> <li>(a) NC alarm message                             <ul style="list-style-type: none"> <li>- NC alarm occurrence (Common to all part systems)</li> <li>- NC alarm occurrence (Each part system)</li> </ul> </li> <li>(b) PLC alarm message</li> </ul>				
		<ul style="list-style-type: none"> <li>■ Priority ranking for alarm display</li> <li>1: NC alarm (Common to all part systems)</li> <li>2: NC alarm (Each part system)</li> <li>3: PLC alarm</li> </ul>				
		<ul style="list-style-type: none"> <li>■ Background colors and icons</li> </ul> The background color of the screen indicates the operation status.				
		Operation status	Icon	Alarm message	Font color	Background color
		Alarm		EMG Emergency stop EXIN	White	Red
		Stopped		T02 Auto operation pause signal ON 0204	Black	Yellow
		Operating			-	Green
Power OFF			-	Gray		
Stand-by			-	Blue		
* Alarm messages that indicate an operation status other than an operation stoppage are displayed while operation continues.						
(2)	Date/Time of data	The date and time of the obtained data is displayed at the top right of the screen. Refer to "6.3.1 Setting the Display" for details on the format for the display of date/time. The background color of data display area varies depending on the operation status.				
		Operation status		Font color	Background color	
		Alarm		White	Red	
		Stopped		Black	Yellow	
		Operating		Black	Green	
		Power OFF		White	Gray	
		Stand-by		Black	Blue	
(3)	Setting button	Clicking the setting button opens the setting dialog. Refer to "6.3.1 Setting the Display" for details.				
(4)	Indicator light	Operation status is indicated by four colors. For operation status definitions, refer to "6.3.2 Device Screen".				
(5)	Type information	Displays the type information. Line 1: Model type Line 2: Serial No.				
(6)	Machining program	Displays the name of the machining program being executed.				
(7)	Tab menu	Click a tab to change screen. Refer to "6.2.3 Changing Screens" for details.				
(8)	Specified period for operation status	Specifies utilization rate or period for operation status. The period can be selected from [One day], [Weekly], [Monthly], [3 months], [6 months] or [Any period]. When [One day] or [Any period] is selected, the horizontal bar graph is displayed. When the other option is selected, the vertical bar graph is displayed. The date already input is not changed regardless of which option is selected. When [Today] button is clicked, [One day] is input in "Period" column, and current date is input in "Date" column.				

No.	Item	Details																		
(9)	Utilization rate	The utilization rate is displayed as a pie chart. The utilization rate for the time shown on the time series graph (11) below is displayed. The display changes in the order of "Operation", "Stop", "Alarm stop", "Stand-by" and "Power OFF".																		
(10)	Operation status summary	The time and ratio for each operation status is displayed. The utilization rate for the time shown on the time series graph (11) below is displayed. To select display or non-display on the graph (11) by clicking the checkbox next to each item.																		
(11)	Time series graph	The time for each operation status is shown as a time series graph. The graph displays the data from "00:00 of the start date" to "00:00 of the next day of the end date (24:00 of the end date)". Hover the mouse over the graph to display start and end time for the selected item. When [One week] is selected for the period (indicated in item (8)), the graph of the week including the selected date is displayed, which starts Monday. When [One month] is selected for the period, the graph of the month including the selected date is displayed on a weekly basis. When [3 months] or [6 months] is selected for the period, the graph of the latest 3 months or 6 months including the selected date is displayed. When [Any period] is selected for the period, you can specify any desired period. Current date is set by default as both the start date and end date. Up to 7 days can be displayed on the graph. If the set end date is earlier than the start date, no data is displayed on the graph. The blank (white-colored) portion of the time series graph or the pie chart indicates the time of "Server stopped". "Server stopped" means the state that the data-collecting server (the PC in which NC Visualizer has been installed) stopped, or the state that NC Visualizer itself stopped. The data for operation status is not collected for that term.																		
(12)	Current machining information	Displays the following machining information. "\$" indicates the part system No.																		
		<table border="1"> <thead> <tr> <th>Item</th> <th>Unit</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Operation mode</td> <td>None</td> <td></td> </tr> <tr> <td>NC status</td> <td>None</td> <td></td> </tr> <tr> <td>Machining program - O No. - N No. - B No.</td> <td>None</td> <td></td> </tr> <tr> <td>Number of parts finished</td> <td>None</td> <td></td> </tr> <tr> <td>Cycle time</td> <td>s</td> <td></td> </tr> </tbody> </table>	Item	Unit	Remarks	Operation mode	None		NC status	None		Machining program - O No. - N No. - B No.	None		Number of parts finished	None		Cycle time	s	
		Item	Unit	Remarks																
		Operation mode	None																	
		NC status	None																	
		Machining program - O No. - N No. - B No.	None																	
		Number of parts finished	None																	
Cycle time	s																			
(13)	Machining monitor	Displays the following values.																		
		<table border="1"> <thead> <tr> <th>Item</th> <th>Unit</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>FA (command rate)</td> <td>mm/min</td> <td>This value is displayed when the unit for FC (actual rate) is "mm/min".</td> </tr> <tr> <td>FC (actual rate)</td> <td>mm/min mm/rev</td> <td>The display unit is decided according to the command mode.</td> </tr> <tr> <td>T (selected tool)</td> <td>None</td> <td></td> </tr> <tr> <td>M code</td> <td>None</td> <td></td> </tr> <tr> <td>S (spindle speed) (a) Actual value (b) Command value</td> <td>r/min</td> <td></td> </tr> </tbody> </table>	Item	Unit	Remarks	FA (command rate)	mm/min	This value is displayed when the unit for FC (actual rate) is "mm/min".	FC (actual rate)	mm/min mm/rev	The display unit is decided according to the command mode.	T (selected tool)	None		M code	None		S (spindle speed) (a) Actual value (b) Command value	r/min	
		Item	Unit	Remarks																
		FA (command rate)	mm/min	This value is displayed when the unit for FC (actual rate) is "mm/min".																
		FC (actual rate)	mm/min mm/rev	The display unit is decided according to the command mode.																
		T (selected tool)	None																	
		M code	None																	
S (spindle speed) (a) Actual value (b) Command value	r/min																			
(14)	Unit temperature	Displays the following values.																		
		<table border="1"> <thead> <tr> <th>Item</th> <th>Unit</th> <th>Remarks</th> </tr> </thead> <tbody> <tr> <td>Control unit (temperature)</td> <td>°C</td> <td></td> </tr> <tr> <td>Spindle (temperature)</td> <td>°C</td> <td>Up to 8 axes</td> </tr> </tbody> </table>	Item	Unit	Remarks	Control unit (temperature)	°C		Spindle (temperature)	°C	Up to 8 axes									
		Item	Unit	Remarks																
		Control unit (temperature)	°C																	
Spindle (temperature)	°C	Up to 8 axes																		

No.	Item	Details		
(15)	Cumulative time	Displays the following values.		
		Item	Unit	Remarks
		Machining power ON time	None	
		Cycle start	None	
(16)	NC axis load meter (\$1 to \$8)	Displays the NC axis load information for each system as a meter display. (Up to 8 part systems) The maximum value for each part system is displayed with the peak-holding state.		
		Item	Unit	Remarks
		1st part system (\$1)	%	
		2nd part system (\$2)	%	
		3rd part system (\$3)	%	
		4th part system (\$4)	%	
		5th part system (\$5)	%	
		6th part system (\$6)	%	
		7th part system (\$7)	%	
		8th part system (\$8)	%	
(17)	Spindle load meter	Displays the spindle load information as a meter display. (Up to 8 axes) The maximum value is displayed with the peak-holding state.		
		Item	Unit	Remarks
		Spindle load meter	%	
(18)	Processing results (\$1 to \$8)	Displays the processing results (latest 100 items) for each part system.		
		Item	Unit	Remarks
		Machining completion date	None	Refer to "6.3.1 Setting the Display" for the format for the display of date/time.
		Main O number	None	
		Number of parts finished	None	
Machining time	None			
(19)	Warning message	A message with the  icon is displayed in cases such as when the number of connected devices exceeds the number of devices specified in the license agreement. The font colors and background colors are the same as (1) alarm information. Refer to "6.5 Messages" for the details of the messages.		
(20)	Display change button	Switches the display of the time series graph explained in item (11). Click this button to switch the graph direction between vertical and horizontal. When the multiple dates are selected, the display of each graph is as follows: - The vertical bar graph displays the total data of a day. - The horizontal bar graph displays the data from the start date to the end date with the daily scale in chronological order.		

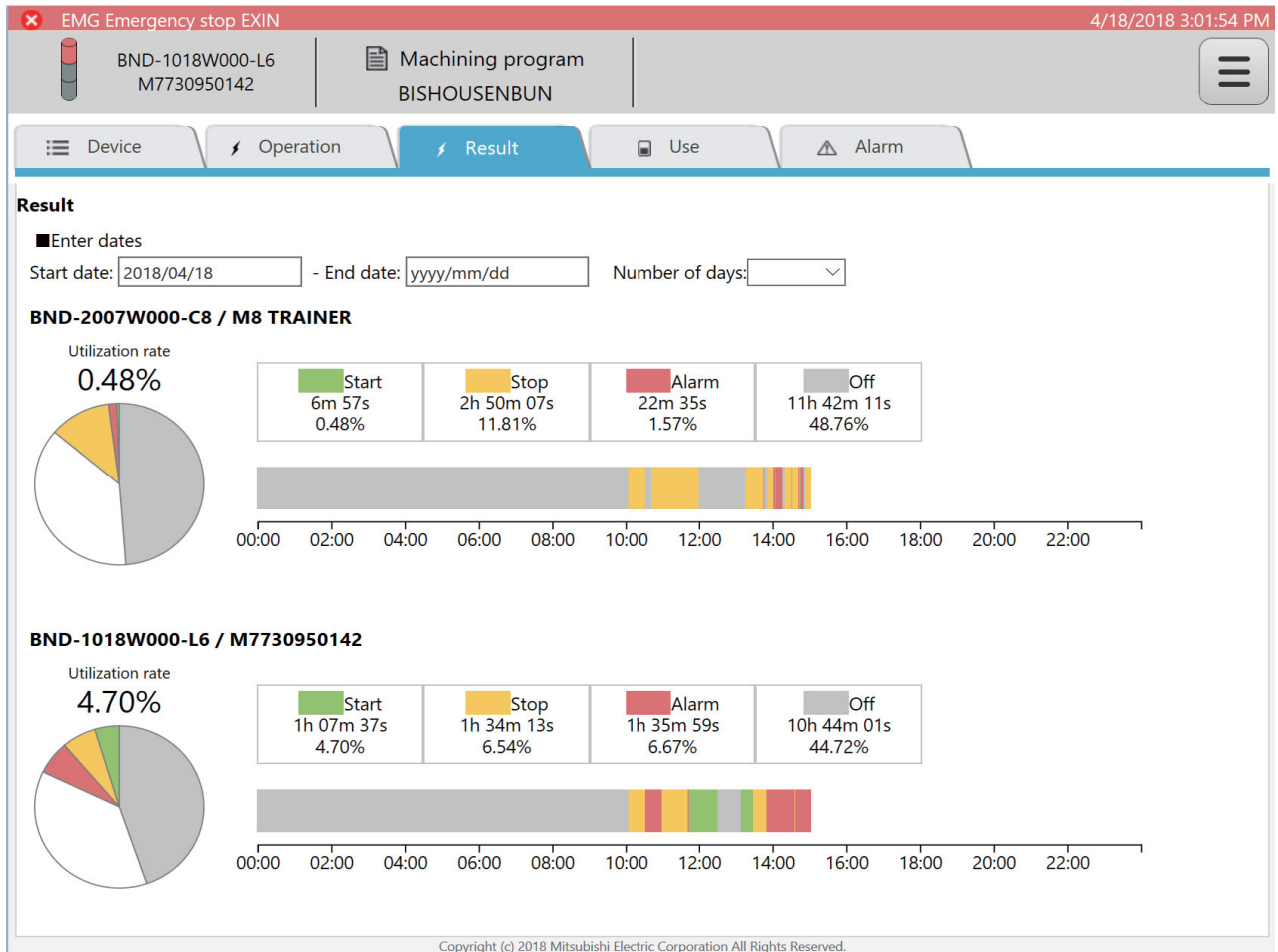
### 6.3.4 Result Screen

The result screen shows a list of the results for each device.

A time period (up to one month) can be specified.

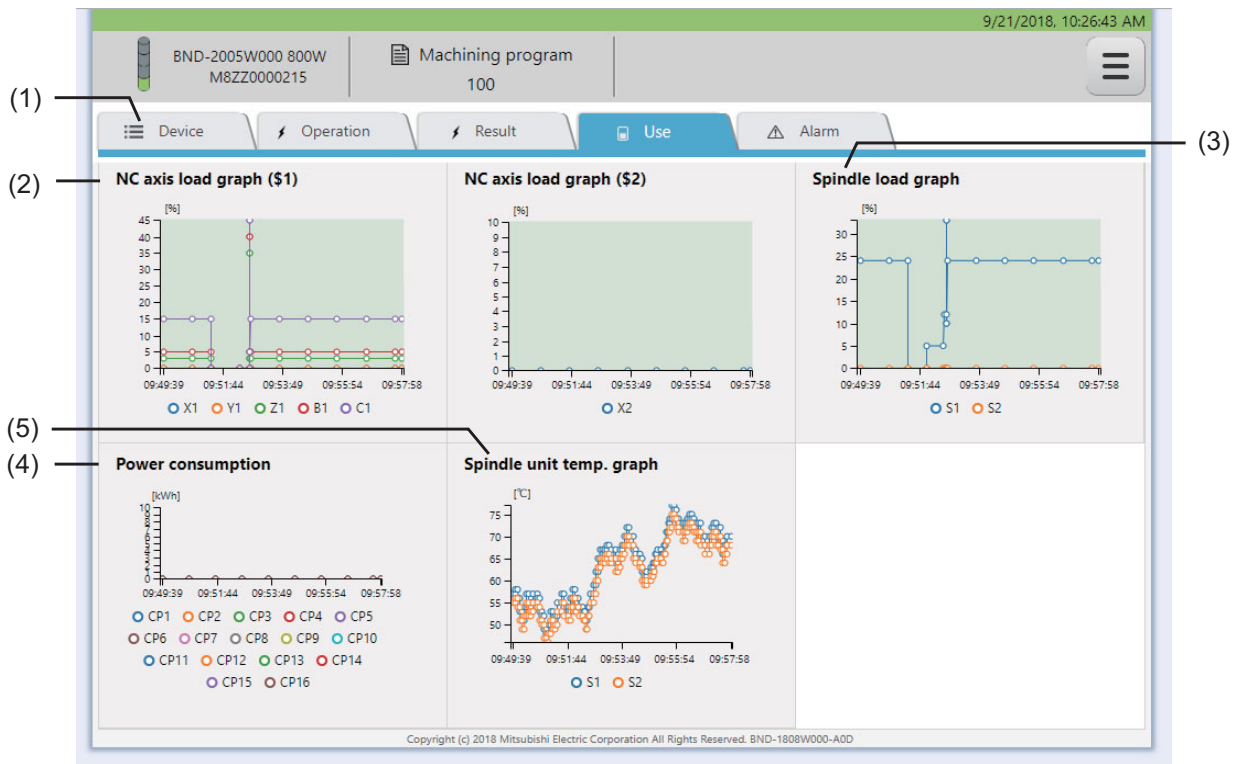
The items displayed are the same as items: (9) Utilization rate, (10) Operation status summary, and (11) Time series graph in "6.3.3 Operation Screen".

\* These items for all registered devices are displayed.



### 6.3.5 Use Screen

The use screen shows the consumption information of the device selected (clicked [Display] button) on the device screen.



Display items			
No.	Item	Details	
(1)	Tab menu	Click a tab to change screen. Refer to "6.2.3 Changing Screens" for details.	
(2)	NC axis load graph (\$1) to (\$8)	Displays the NC axis load information as a graph. ■ Graph display details (a) Horizontal axis: Time (time series) (b) Vertical axis: NC axis load value (%)  ■ Display items	
		Item	Remarks
		1st part system (\$1) to 8th part system (\$8)	Linear axis/Rotary axis: 1 to 12 axes
(3)	Spindle load graph	Displays the spindle load information as a graph. ■ Graph display details (a) Horizontal axis: Time (time series) (b) Vertical axis: Spindle load value (%)  ■ Display items	
		Item	Remarks
		1st spindle to 8th spindle	
(4)	Power consumption	Displays the power consumption as a graph. ■ Graph display details (a) Horizontal axis: Time (time series) (b) Vertical axis: Power consumption (kWh)  ■ Display items	
		Item	Remarks
		Power consumption	
(5)	Spindle unit temperature graph	Displays the spindle unit temperature as a graph. ■ Graph display details (a) Horizontal axis: Time (time series) (b) Vertical axis: Temperature of each spindle (°C)  ■ Display items	
		Item	Remarks
		Spindle unit temperature	

### 6.3.6 Alarm Screen

The alarm screen shows the alarms occurring, the alarm history, and the 10 most frequent alarms for the device selected (clicked [Display] button) on the device screen.

The screenshot displays the Alarm screen interface with the following components:

- (1)** Header area showing device information: BND-2005W000 800W M8ZZ0000215 and Machining program 100.
- (2)** Alarm info section showing: EMG Emergency stop EXIN \$1.
- (3)** Alarm history table with columns: Date of alarm occurrence, Alarm number, and Alarm message.
- (4)** TOP 10 most frequent alarms bar chart.

Date of alarm occurrence	Alarm number	Alarm message
11/30/2018, 10:24:30 AM	EMG	Emergency stop EXIN \$1
11/30/2018, 10:23:48 AM	PLC:	A0001 USER PLC ERROR 0000
11/30/2018, 10:23:38 AM	EMG	Emergency stop SPIN \$1
11/30/2018, 10:23:37 AM	EMG	Emergency stop EXIN \$1
11/30/2018, 10:23:31 AM	EMG	Emergency stop EXIN \$1
11/30/2018, 10:23:17 AM	P232	No program No. 0 0 \$1
11/30/2018, 10:23:10 AM	PLC:	A0001 USER PLC ERROR 0000
11/30/2018, 10:22:56 AM	EMG	Emergency stop EXIN \$1
11/30/2018, 10:22:06 AM	P232	No program No. 0 0 \$1
11/30/2018, 10:20:23 AM	PLC:	A0001 USER PLC ERROR 0000
11/30/2018, 10:20:13 AM	EMG	Emergency stop EXIN \$1
11/30/2018, 10:18:30 AM	PLC:	A0001 USER PLC ERROR 0000

Alarm Type	Count
FAULT	20
EMG	12
M01	8
U50	8
EMG	7
PLC:	7
EMG	2
P232	2
EMG	1
EMG	1

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**Display items**

No.	Item	Details	
(1)	Tab menu	Click a tab to change screen. Refer to "6.2.3 Changing Screens" for details.	
(2)	Alarm information	Displays the alarm information for all the alarms occurring. <ul style="list-style-type: none"> <li>■ Priority ranking for alarm display</li> <li>1: NC alarm message (Common to all part systems)</li> <li>2: NC alarm message (Each part system)</li> <li>3: PLC alarm message</li> </ul>	
		<ul style="list-style-type: none"> <li>■ Display items</li> </ul>	
		Item	Remarks
		NC alarm message Common to all part systems Each part system	
		PLC alarm message	
(3)	Alarm history	Displays the alarm history as a list. <ul style="list-style-type: none"> <li>■ Display items</li> </ul>	
		Item	Remarks
		Date of alarm occurrence	Refer to "6.3.1 Setting the Display" for the format for the display of date/time.
		NC alarm message Common to all part systems Each part system	
		PLC alarm message	
(4)	Top 10 most frequent alarms	Displays the 10 most frequent alarms that have occurred.  Miscellaneous function: Moving the cursor over the bar chart for each alarm displays the alarm message.	



## 6.4 Restrictions

- (1) When data is not being collected from the machine, "--" is displayed.
- (2) Multiple connections to one device from multiple NC Visualizers using different web servers is not possible.
- (3) EcoMonitorLight is required to display the power consumption. EcoMonitorLight supports M8 Series.
- (4) The number of the alarm history items to be displayed is limited according to the environment.
- (5) A language for displaying each alarm message depends on the display language specified in the NC when an alarm has occurred (parameter "#1043 lang").

## 6.5 Messages

The messages that dashboard outputs appear at the top of the browser (where the alarm messages appear).

Message	Details
Communication Error. Failed to connect to the server.	Communication with the web server failed.
Data is invalid.	The data obtained is an incorrect value.
You have no license key.	There was no license key at the license check.
It exceeds the maximum number of licenses.	At the license check, the requested number of devices exceeded the maximum number of connecting devices.

## 6.6 Troubleshooting

Symptom	Remedy
"This page can't be displayed" or "File not found" message appears in the browser.	The web server may not be running. Start the web server.
The data does not appear on the screen.	Connection with the NC failed, or MTConnect Adapter failed to read the files from the NC. Review the device configuration. When the device configuration has been changed, display the data after clearing the cache memory of the browser.



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## Device Information Registration Tool

Various setting for NC Visualizer can be set using device information registration tool.  
\* Administrator authority is required to start the device information registration tool.

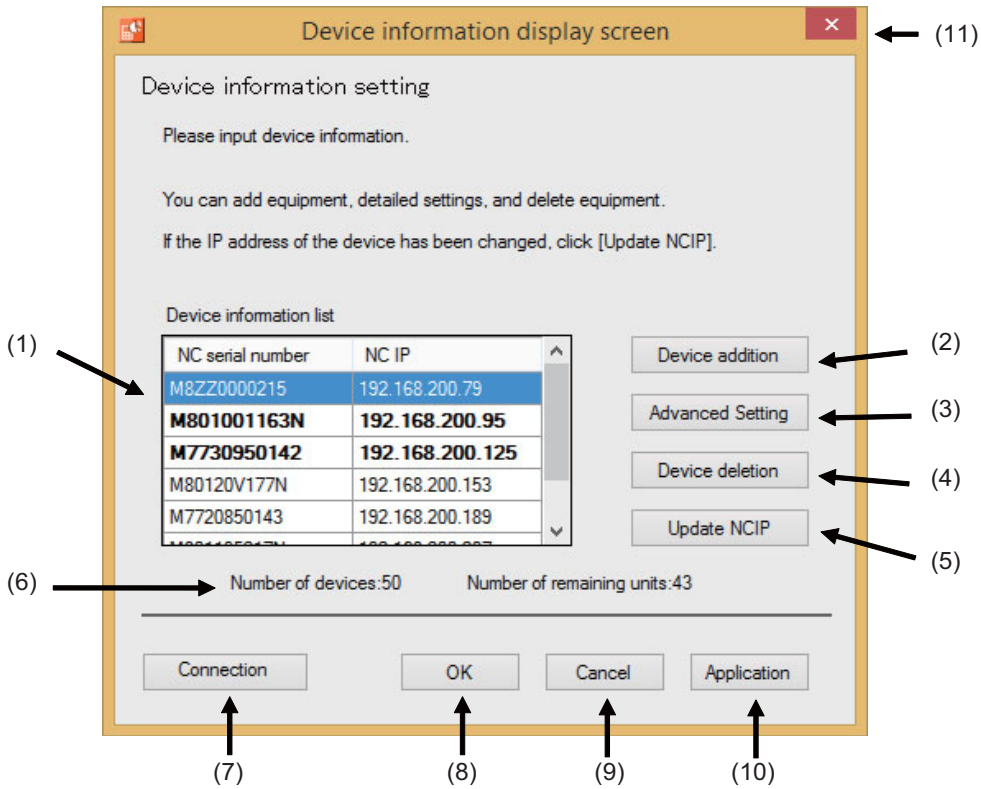
### 7.1 Screen Configurations

Screen configurations of device information registration tool are as follows.

#### 7.1.1 Device Information Display Screen (Initial Start-up Screen)

When device information registration tool starts up, the following initial screen is displayed. Device information configured in NC Visualizer are displayed.

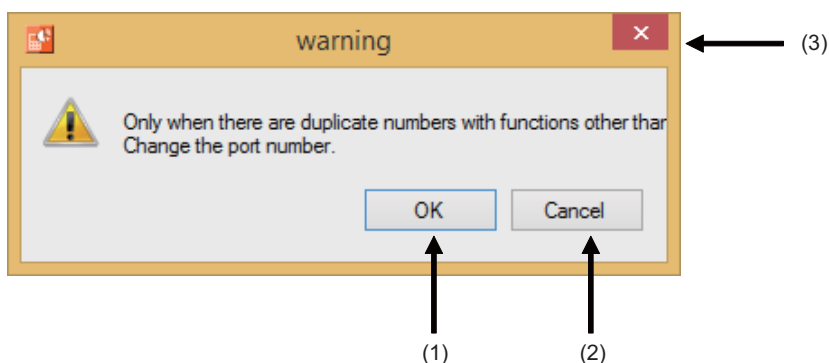
You can add, change or delete device information by using buttons on this screen.



**Display items**

No.	Item	Details
(1)	Device information list	Device information configured in NC Visualizer and contents changed by using the button explained item (2), (3), (4) or (5). Information which is added or deleted (of non-applicable device) is displayed in bold. The display of the items in the list can be switched between the ascending- and descending-order by clicking item title.
		Item
		Details
		NC serial number
	NC IP	Displays IP addresses of NCs to be connected.
(2)	Device addition button	Adds device information to be connected. When a new device is to be connected, the information of that is obtained automatically. Displays the device addition screen.
(3)	Advanced setting button	Changes the information of the device selected in the list (1). Displays the device information detailed setting screen.
(4)	Device deletion button	Deletes the information of the device selected in the list (1).
(5)	Update NCIP button	Acquires IP information for all the NCs again based on the NC serial numbers displayed in the list (1).
(6)	License status	Displays the total number of connectable NCs and the remaining number of connectable NCs When the hardware key is not inserted, "-" is displayed for the number.
(7)	Connection (information setting) button	After a warning dialog is displayed, Agent port number setting screen to set the port number which is opened by the Agent is displayed.
(8)	OK button	Configures NC Visualizer in the setting displayed in the list (1), and ends the application.
(9)	Cancel button	Cancel the addition, change or deletion for the item which is not applied yet, and ends the application.
(10)	Application button	Configures NC Visualizer in the setting displayed in the list (1).
(11)	× button	Cancel the addition, change or deletion for the item which is not applied yet, and ends the application.

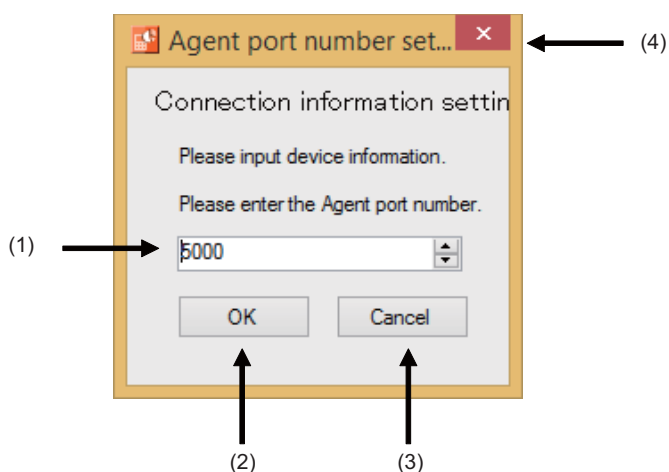
Warning dialog



**Display items**

No.	Item	Details
(1)	OK button	Closes the warning dialog to display the Agent port number setting screen.
(2)	Cancel button	Closes the warning dialog.
(3)	x button	Closes the warning dialog.

Agent port number setting screen

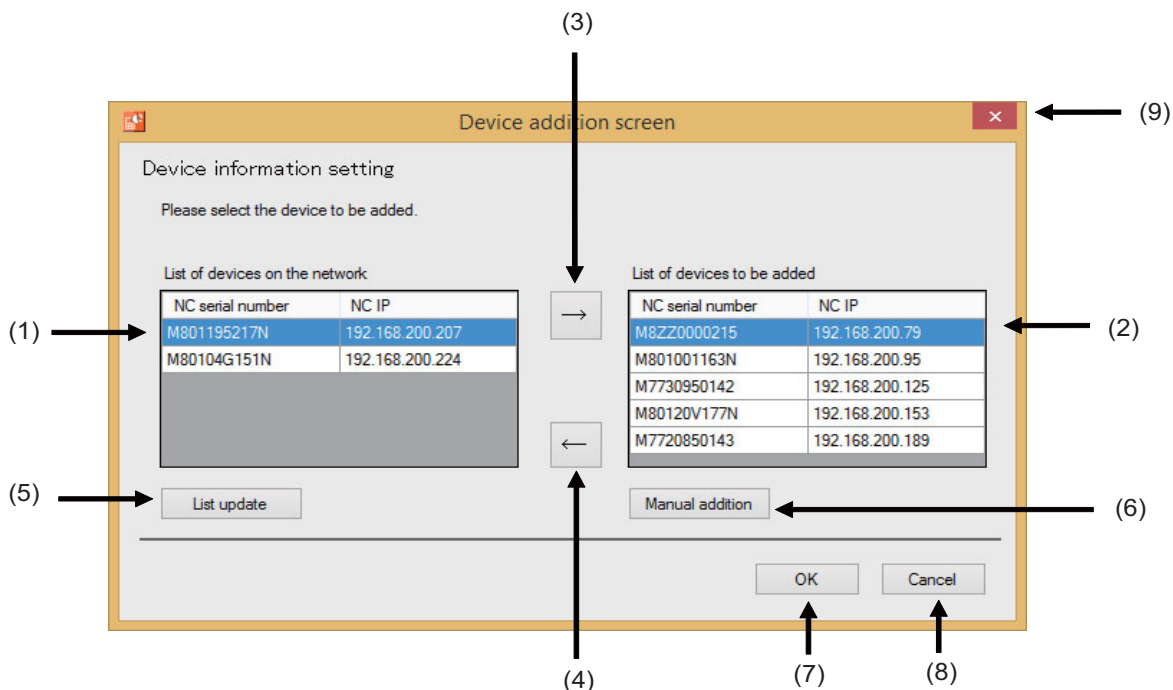


**Display items**

No.	Item	Details
(1)	Agent port number	Sets the port number which is opened by the Agent. The value is set by default. Change the port number only when there are duplicate numbers with functions other than NC Visualizer.
(2)	OK button	Applies the change to close the Agent port number setting screen.
(3)	Cancel button	Cancel the change to close the Agent port number setting screen.
(4)	x button	Cancel the change to close the Agent port number setting screen.

### 7.1.2 Device Addition Screen

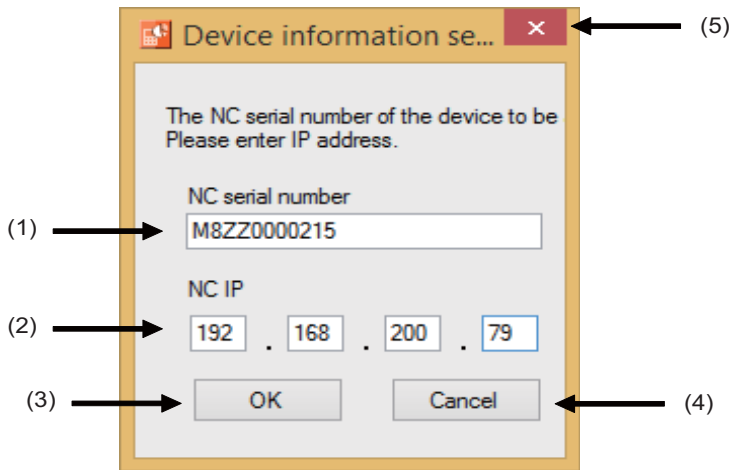
You can add a new device to be monitored by NC Visualizer.  
 There are two types of method to add a new device as follows:  
 - Select a device on the network.  
 - Enter the serial number or IP address of an NC manually.



#### Display items

No.	Item	Details
(1)	List of devices on the network	Displays the devices on the network. The device which has already been added is not displayed.
(2)	List of devices to be added	Displays the device which has already been added and the device to be added.
(3)	Device addition button	Adds the device selected in the list (1) to the list (2).
(4)	Addition cancel button	Deletes the device selected in the list (2).
(5)	List update button	Updates the information displayed in the list (1).
(6)	Manual addition button	Displays the device information setting screen to manually enter the serial number or IP address of the device to be added.
(7)	OK button	Adds the devices displayed in the list (2) to the list (1) of the device information display screen (the initial start-up screen) (refer to 7.1.1), and closes the device addition screen.
(8)	Cancel button	Cancels addition to close the device addition screen.
(9)	× button	Cancels addition to close the device addition screen.

Device information setting screen

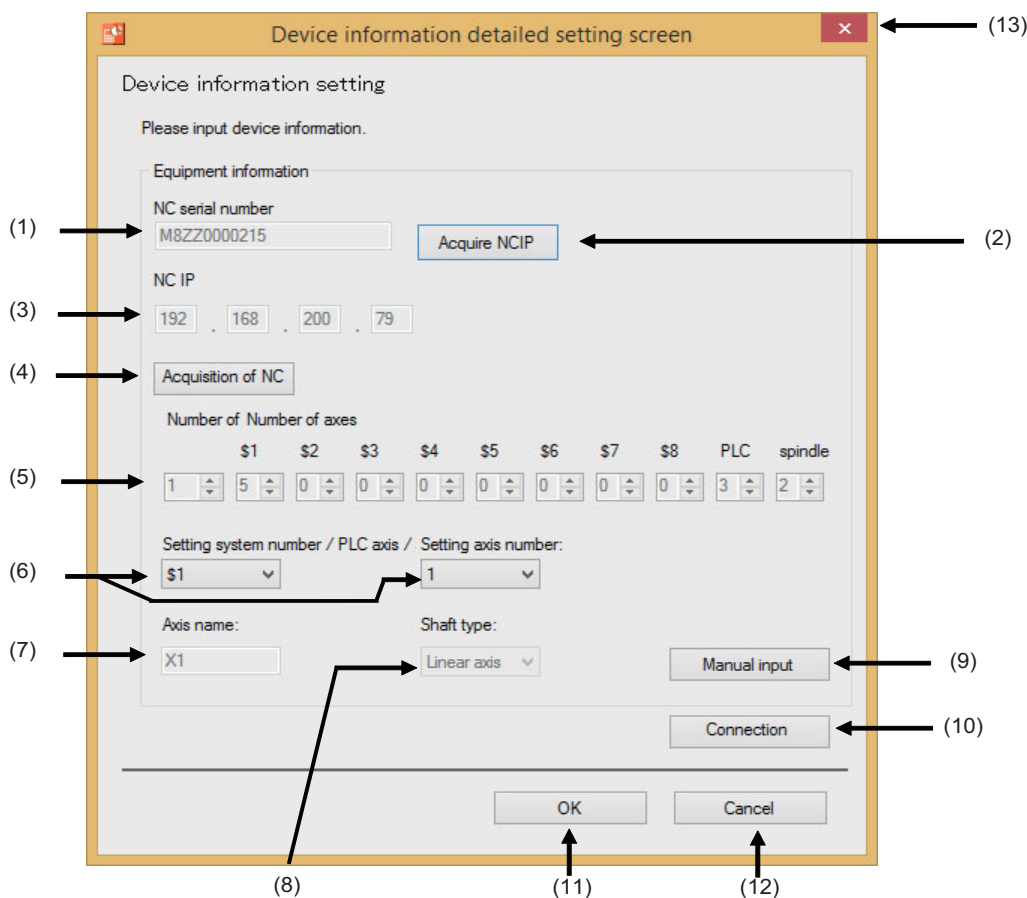


**Display items**

No.	Item	Details
(1)	NC serial number	Enter the serial numbers of an NC to be added.
(2)	NC IP address	Enter the IP address of the NC to be added.
(3)	OK button	Applies addition to close the device information setting screen.
(4)	Cancel button	Cancels addition to close the device information setting screen.
(5)	x button	Cancels addition to close the device information setting screen.

### 7.1.3 Device Information Detailed Setting Screen

You can set the detailed information of the device selected on the device information display screen. In the initial state, it is not possible to change the setting for each items on this screen. To set the detailed information to press [Manual input] button.

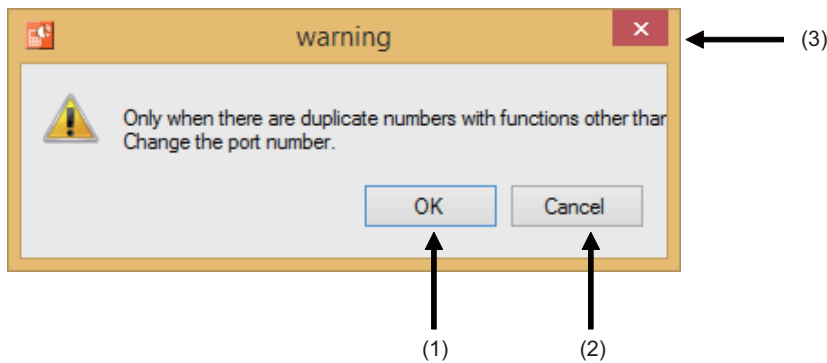


#### Display items

No.	Item	Details
(1)	NC serial number	Enter the serial number of an NC to be connected.
(2)	Acquire NCIP button	Acquires IP information for the NC displayed in (1), and displays it in (3).
(3)	NC IP address	Enter the IP address of the NC to be connected.
(4)	Acquisition of NC button	Acquires NC information of NCIP displayed in (3), and displays it in (5) to (7).
(5)	Information for the number of part systems and axes	Sets the number of the part systems and sets the number of axes for each part system.
(6)	Selection for part system No. and axis No.	Selects the No. of the part system, the PLC axis or spindle, and selects axis No. for that. They are to be set in (7) and (8).
(7)	Axis name	Sets the name for the axis selected in (6).
(8)	Shaft type	Sets the axis type (linear axis/rotary axis) for the axis selected in (6).
(9)	Manual input button	Enables to enter in the item (1) to (8).
(10)	Connection (information setting) button	After a warning dialog is displayed, Adapter port number setting screen to set the port number which is opened by the Adapter is displayed.
(11)	OK button	Adds the devices displayed in the list (2) to the list (1) of the device information display screen (the initial start-up screen) (refer to 7.1.1), and closes the device information detailed setting screen.
(12)	Cancel button	Cancels addition to close the device information detailed setting screen.
(13)	× button	Cancels addition to close the device information detailed setting screen.



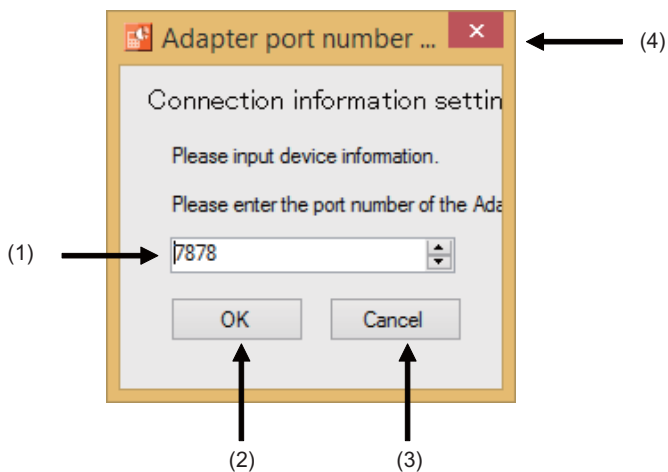
Warning dialog



**Display items**

No.	Item	Details
(1)	OK button	Closes the warning dialog to display the Adapter port number setting screen.
(2)	Cancel button	Closes the warning dialog.
(3)	× button	Closes the warning dialog.

Adapter port number setting screen



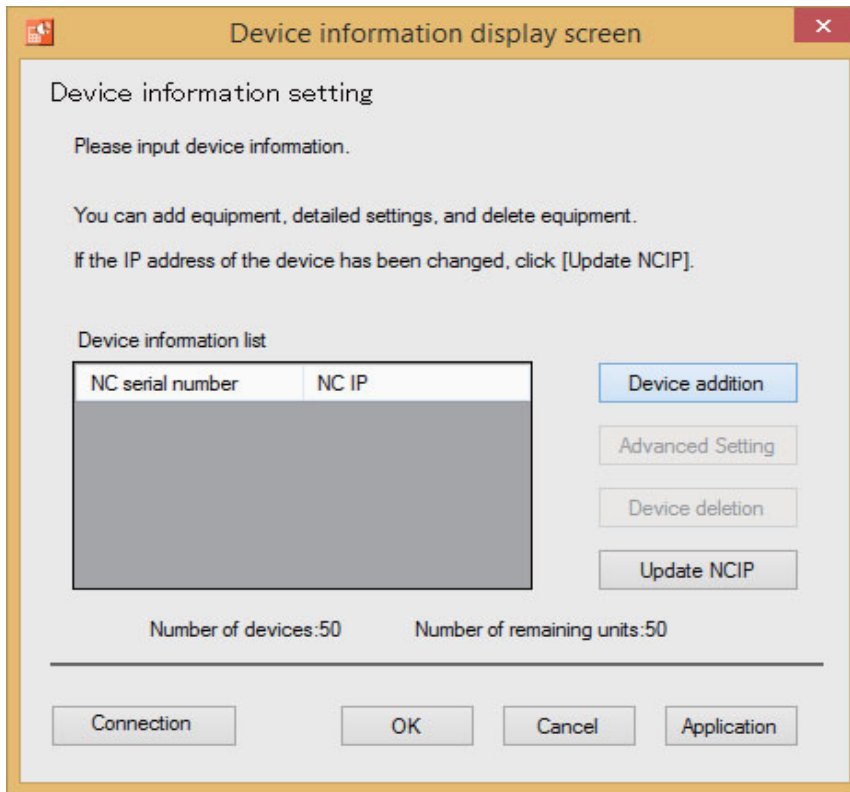
**Display items**

No.	Item	Details
(1)	Adapter port number	Sets the port number which is opened by the Adapter. The value is set by default. Change the port number only when there are duplicate numbers with functions other than NC Visualizer.
(2)	OK button	Applies the change to close the Adapter port number setting screen.
(3)	Cancel button	Cancel the change to close the Adapter port number setting screen.
(4)	× button	Cancel the change to close the Adapter port number setting screen.

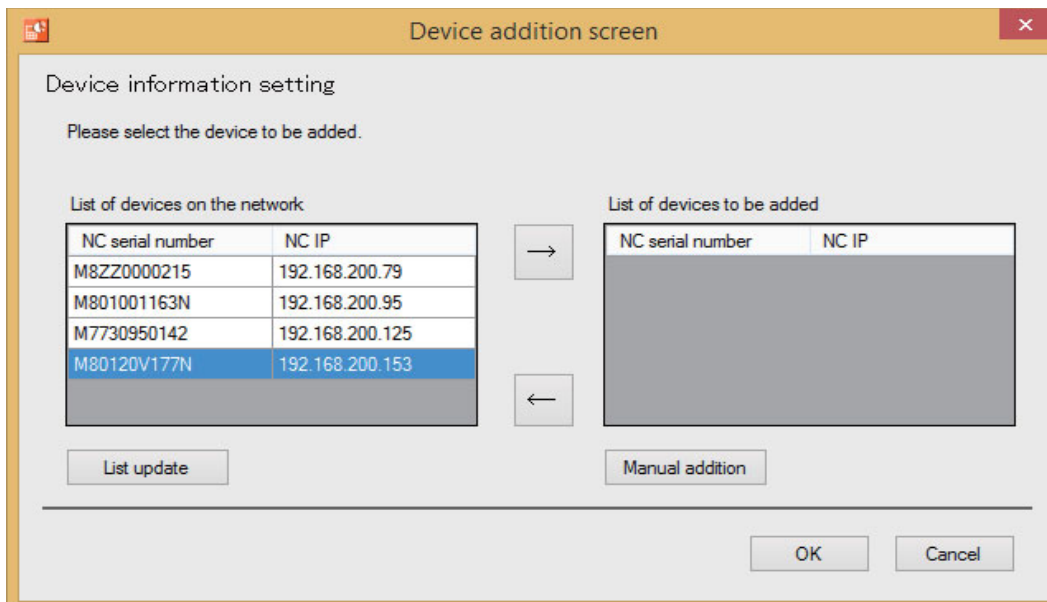
## 7.2 Operating Procedures

### 7.2.1 Adding Devices

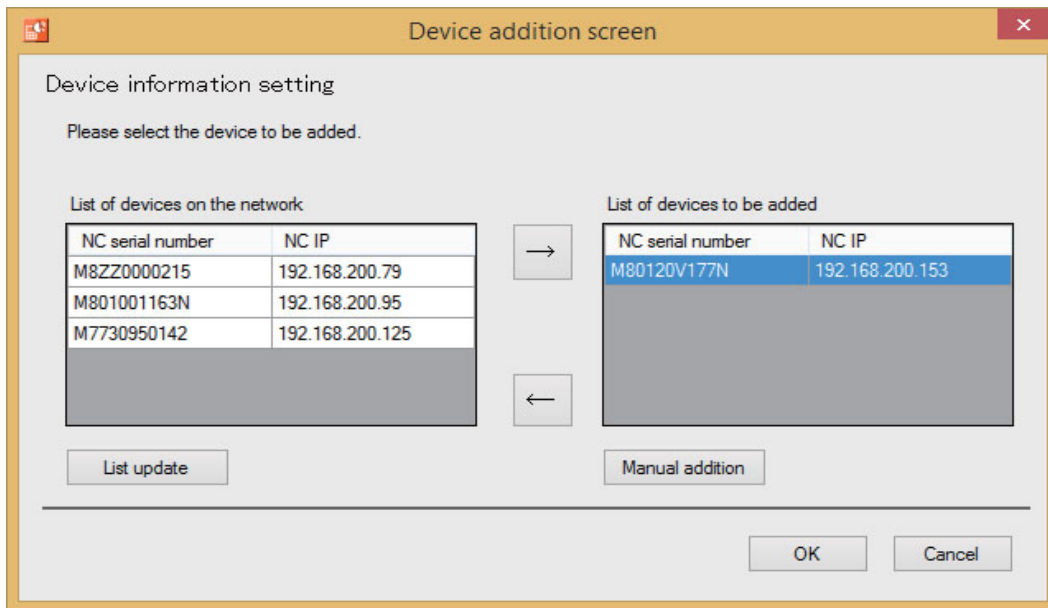
- (1) Press [Device addition] button on the device information display screen.



- (2) Select a device to be added from "List of devices on the network", and press [->] button.



- (3) The device selected in step (2) is added in "List of device to be added". If you want to add another device, repeat the step (2). All the devices have been added, press [OK] button.

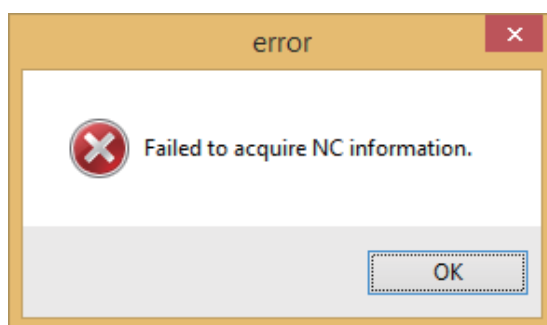


No device is displayed in "List of devices on the network", perform either of the following method.

- (a) Update the information in "List of devices on the network" by pressing [List update] button
- (b) Press [Manual addition] button to display the device information setting screen, and enter the information of the device to be added.

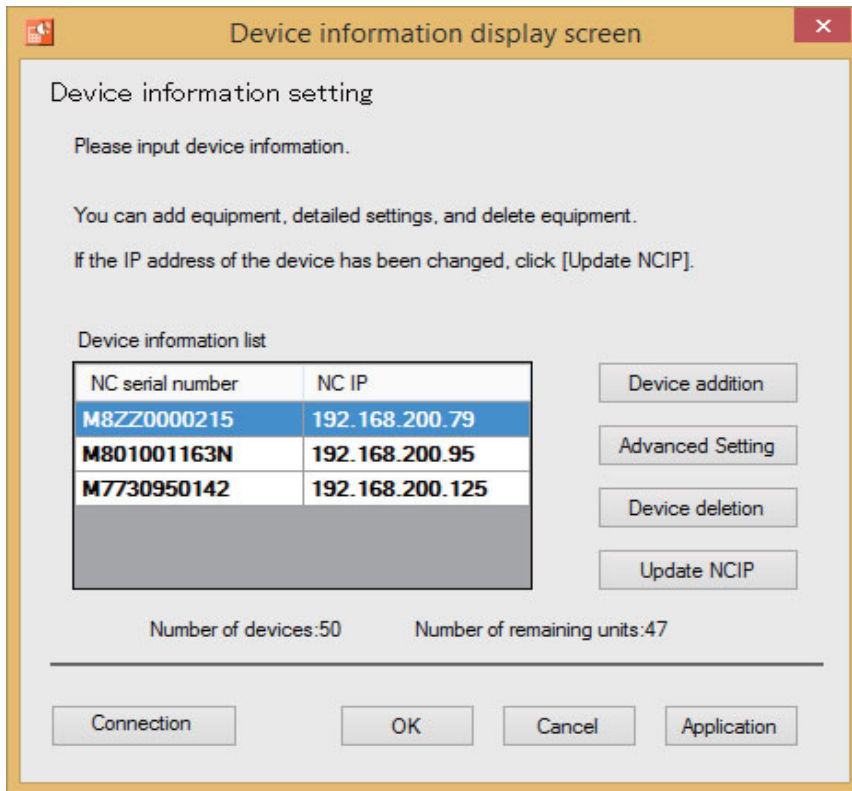
(Note 1) After the method (b) is performed, you need to enter the more detailed information of the device added manually by pressing [Advanced setting] button on the device information display screen. Refer to "7.2.2 Setting Detailed Information of Devices" to enter the information.

(Note 2) If the following dialog is displayed on performing the step (2) or (3), the information of the selected device has not been acquired. Press [Advanced setting] button on the device information display screen to enter the information of the device for which the error dialog is displayed. Refer to "7.2.2 Setting Detailed Information of Devices" for details.



\* If you want to delete any device from "List of devices to be added", select the device to be deleted and press [->] button.

- (4) Check that the information of the devices which are added by performing up to step (3) is displayed.



### 7.2.2 Setting Detailed Information of Devices

- (1) Select a device from "Device information list" on the device information display screen, and press [Advanced setting] button.
- (2) Set the detailed information on the device information detailed setting screen.
  - (a) To acquire the information automatically
    - (i) When no information is displayed in "NCIP", press [Acquire NCIP] button.

NC serial number  
M8ZZ0000215      Acquire NCIP

- (ii) Press [Acquisition of NC] button.

NC IP  
192 . 168 . 200 . 79  
Acquisition of NC

- (iii) Check that the information of the device has been input automatically.

Number of Number of axes  
\$1 \$2 \$3 \$4 \$5 \$6 \$7 \$8 PLC spindle  
1 3 0 0 0 0 0 0 0 0 1

Setting system number / PLC axis / Setting axis number:  
\$1 1

Axis name: Shaft type:  
X1 Linear axis      Manual input

(Note) You must connect an NC to the network to automatically acquire the information for that NC.

- (b) To input the information manually
  - (i) Press [Manual input] button.

Axis name:  Shaft type:

- (ii) Input the NC serial number, IP address, the number of part systems, and number of axes.

Device information detailed setting screen

Device information setting

Please input device information.

Equipment information

NC serial number:

NC IP:  .  .  .

Acquisition of NC

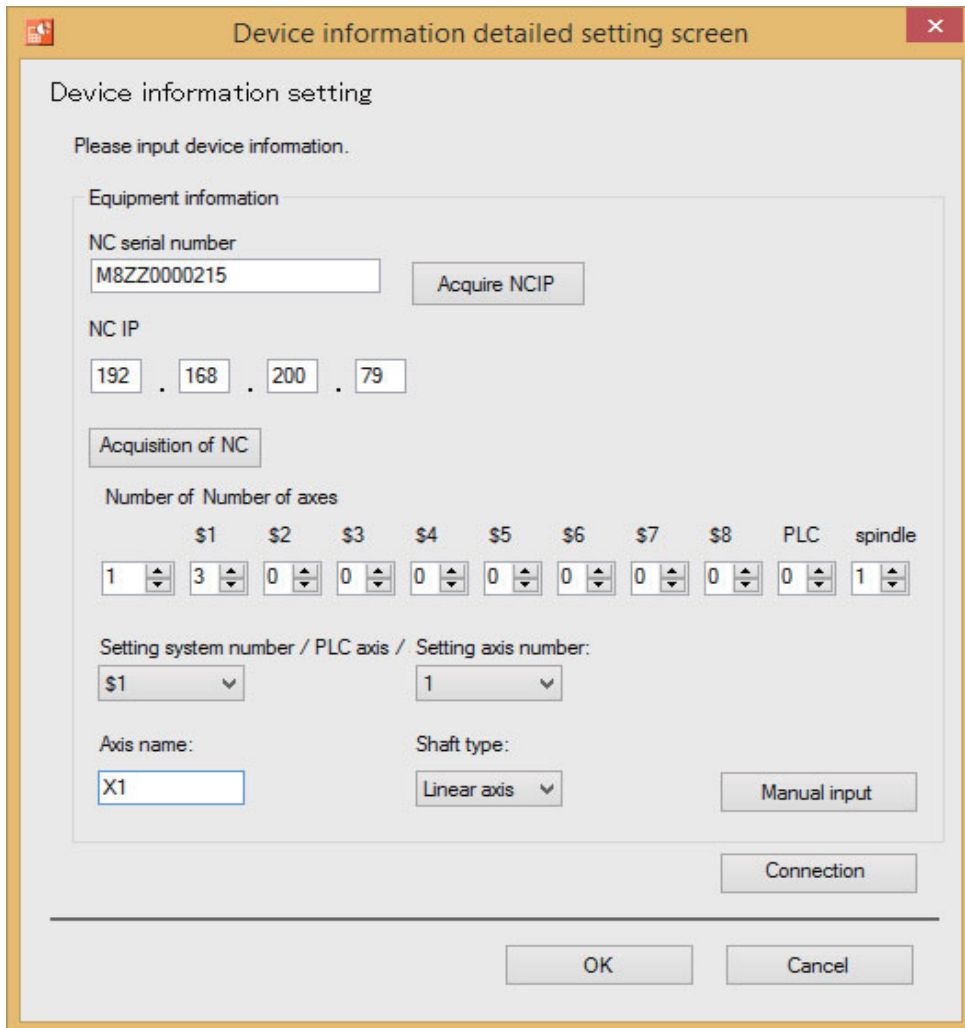
Number of		Number of axes									
		\$1	\$2	\$3	\$4	\$5	\$6	\$7	\$8	PLC	spindle
		<input type="text" value="1"/>	<input type="text" value="3"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="0"/>	<input type="text" value="1"/>

Setting system number / PLC axis / Setting axis number:

Axis name:  Shaft type:

- (iii) After inputting the number of part systems, and number of axes, you can input the information in the items below them.

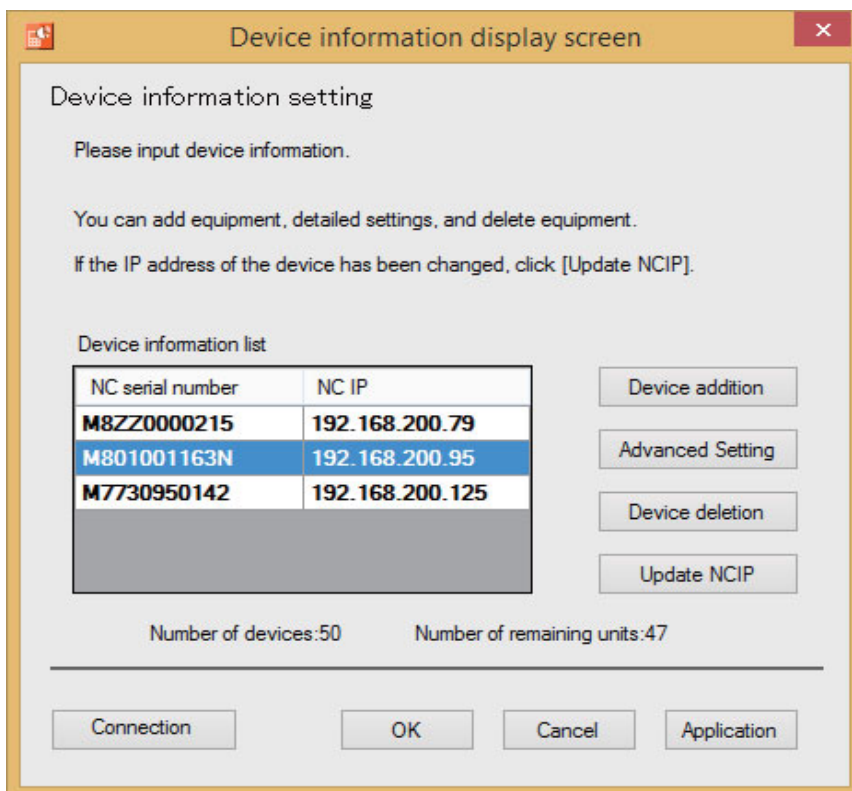
Selects the No. of the part system, the PLC axis or spindle, and selects axis No. for that. Sets the name for the axis and type for the axis.



- (3) After the information for all the devices is input, press [OK] to close the device information detailed setting screen.

### 7.2.3 Deleting Devices

- (1) Select a device to be deleted from "Device information list" on the device information display screen.

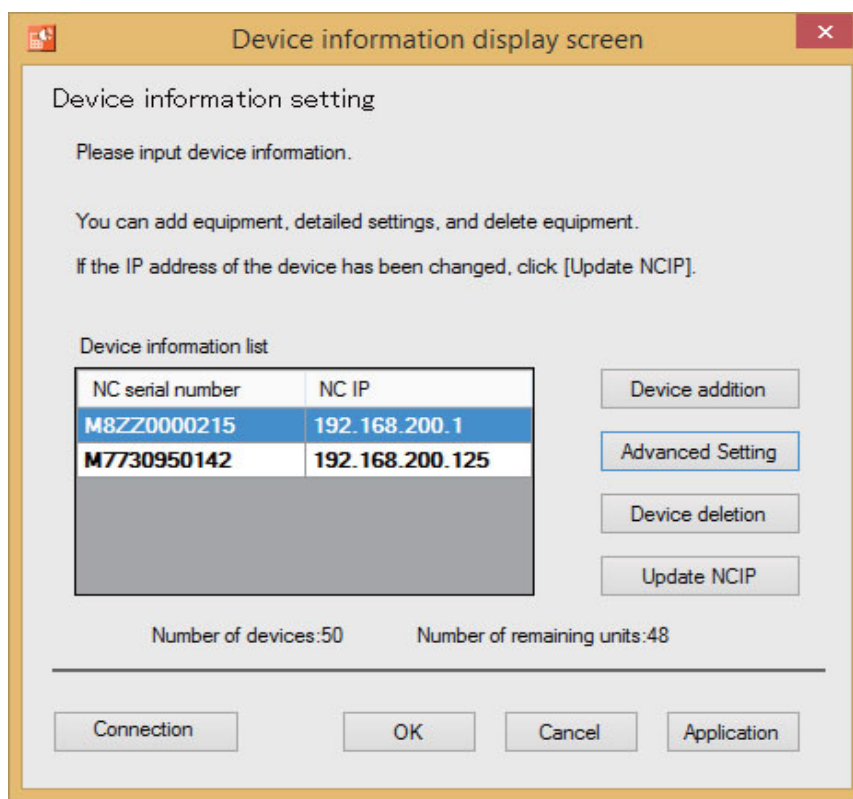


- (2) Press [Device deletion] button.



## 7.2.4 Updating IP Addresses

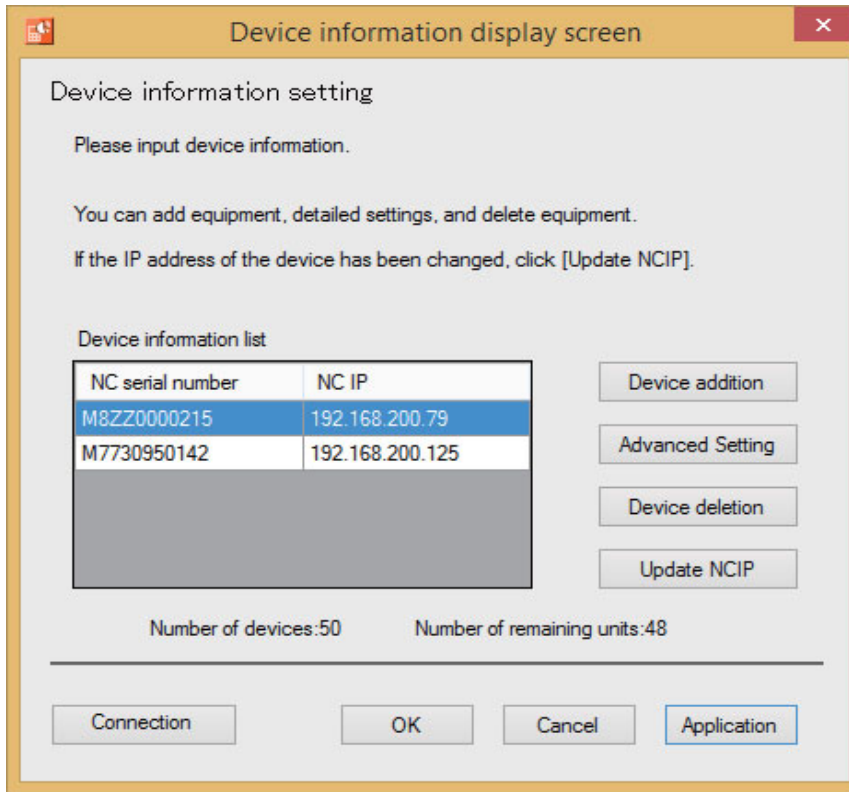
- (1) Select a device whose IP address is to be updated from "Device information list" on the device information display screen.



- (2) Press [Update NCIP] button.

### 7.2.5 Applying Change of the Settings

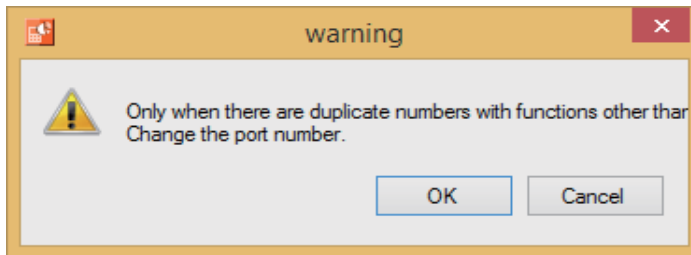
- (1) Press [OK] or [Application] button to apply the change of the settings to NC Visualizer.  
\* Press [OK] button to terminate the device information registration tool automatically.



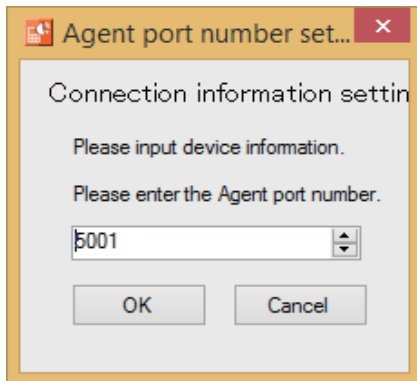
## 7.3 Changing Port Number for MTConnect Adapter/MTConnect Agent

When the port number using MTConnect Adapter or MTConnect Agent of NC Visualizer is duplicated with the number for other application in the same operating environment, the port number can be changed using the device information registration tool.

- (1) To change the port number for MTConnect Agent.
  - (a) Press [Connection] button on the device information display screen.
  - (b) When a warning dialog dialog appears, click [OK].



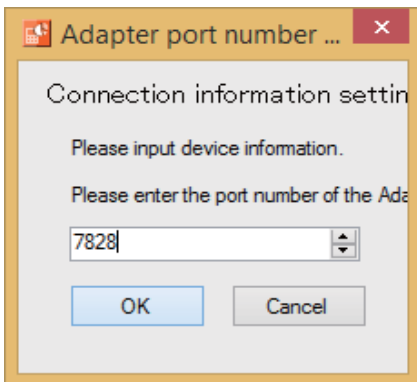
- (c) Change the port number for the Agent, and then press [OK].



- (2) To change the port number for MTConnect Adapter.
  - (a) Select a device from "Device information list" on the device information display screen, and press [Advanced setting] button.
  - (b) Press [Connection] button on the device information detailed setting screen.
  - (c) When a warning dialog appears, click [OK].



- (d) Change the port number for the Adapter, and then press [OK].

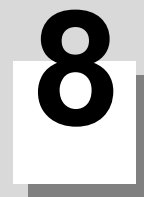


(Note) The port number for MTConnect Adapter is automatically assigned to each device to be monitored. You need to change the port numbers for all the devices.

## 7.4 Error Messages

Error messages displayed on device information registration tool and the details of the messages are as follows.

Error message	Details
You do not have administrator privileges. There is a possibility that the setting file can not be saved normally.	The application was started without administrator privileges. Restart the application with administrator privileges.
Failed to acquire NC information.	Communication with NC has failed. Check the connection status the NC.
The set data is invalid. XXXX (the name of invalid data)	Invalid data has been set in the item displayed. Correct the data in the item displayed.
The specified device has already been added.	You attempt to add the device which has already been added. Check the information of the device to be added.
I exceeded the number that can be added.	The number of devices to be added is exceeded the maximum number (255 devices). Review the devices to be added.
Failed to write the setting file.	Setting file is not written correctly. Check the following: - The application is started with administrator privileges. - The setting file is not opened. - The setting file is not in the read-only state.



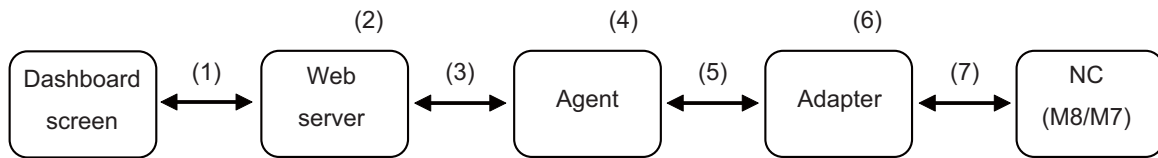
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## NC Visualizer Diagnosis Tool

NC Visualizer diagnosis tool checks to see whether the NC Visualizer module has started successfully and it is communicating properly. When any abnormality is found the tool can identify the location of that.

NC Visualizer diagnosis tool diagnoses the following items.

\* Administrator authority is required to start the NC Visualizer diagnosis tool.



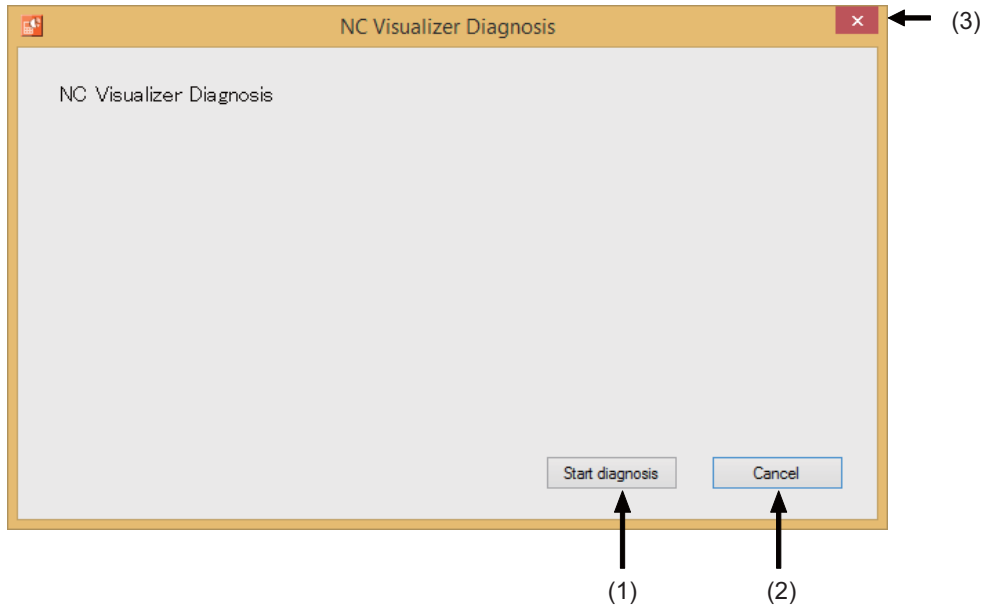
No.	Description
(1)	Checks whether the dashboard screen and the web server can communicate properly.
(2)	Checks whether the web server has started successfully.
(3)	Checks whether the web server and the Agent are communicating properly.
(4)	Checks whether the Agent has started successfully.
(5)	Checks whether the Agent and the Adapter are communicating properly.
(6)	Checks whether the Adapter has started successfully.
(7)	Checks whether the Adapter and the NC are communicating properly.

## 8.1 Screen Configurations

Screen configurations of NC Visualizer diagnosis tool are as follows.

### 8.1.1 Start Diagnosis Screen (Initial Start-up Screen)

When NC Visualizer diagnosis tool starts up, the following initial screen is displayed.  
 Diagnosis starts by pressing "Start diagnosis".



#### Display items

No.	Item	Details
(1)	Start diagnosis button	Diagnosis starts by pressing this button. The screen transits to "Under Diagnosis" screen (refer to 8.2).
(2)	Cancel button	Diagnosis is canceled to terminate the NC Visualizer diagnosis tool.
(3)	× button	Diagnosis is canceled to terminate the NC Visualizer diagnosis tool.

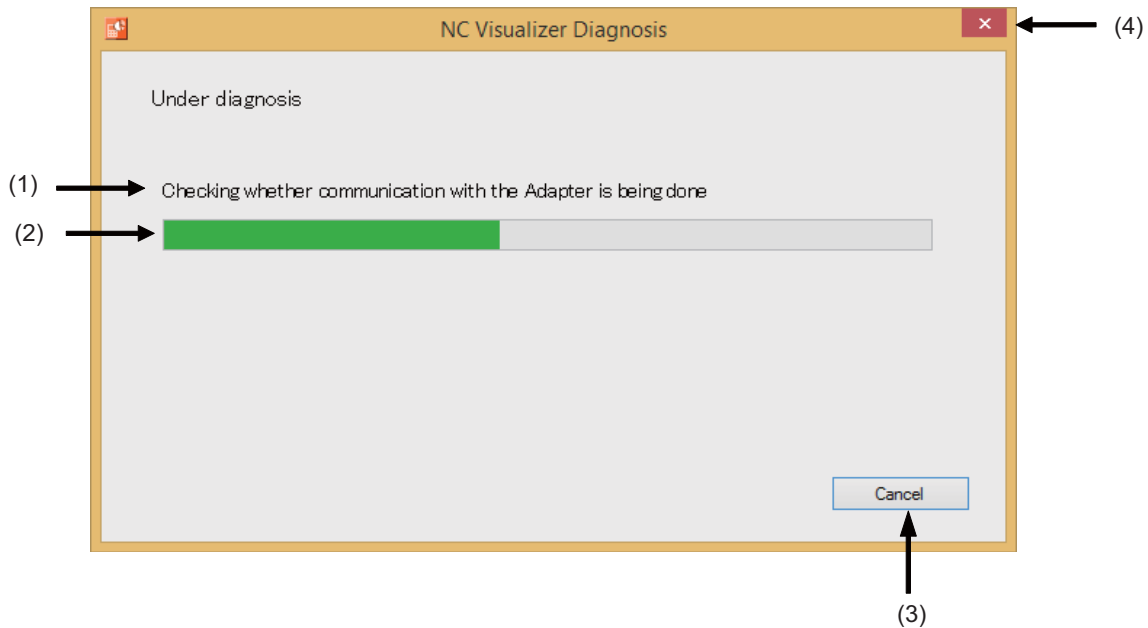


### 8.1.2 Under Diagnosis Screen

The following screen is displayed when a diagnosis is in progress.

The screen automatically transits to the diagnosis result screen after the diagnosis is completed.

Any operation is not required until the diagnosis results is displayed except when you want to interrupt the diagnosis.



**Display items**

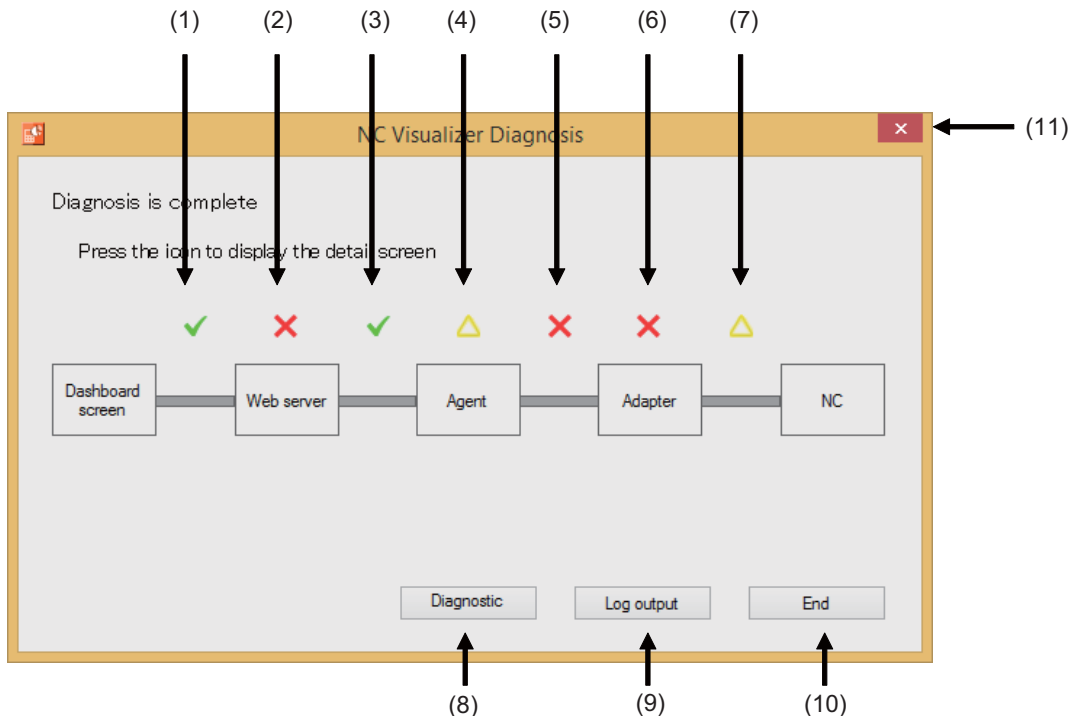
No.	Item	Details
(1)	Item being checked	Displays information currently being checked.
(2)	Progress bar	A progress bar indicating the diagnosis progress After all the diagnosis are completed, the status of the bar changes to 100% display. The screen automatically transits to the diagnosis result screen (refer to 8.1.3).
(3)	Cancel button	Diagnosis is canceled to terminate the NC Visualizer diagnosis tool.
(4)	× button	Diagnosis is canceled to terminate the NC Visualizer diagnosis tool.

### 8.1.3 Diagnosis Result Screen

The following screen is displayed after the diagnosis is completed. You can check whether no problem occurs in each diagnosis point.

Press the point where any problem occurs to display the detailed information of the problem.

The diagnosis log file can also be output.

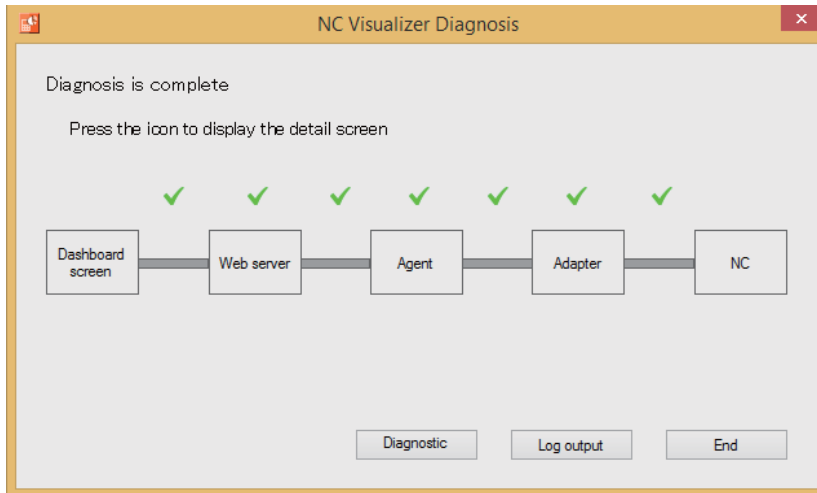


#### Display items

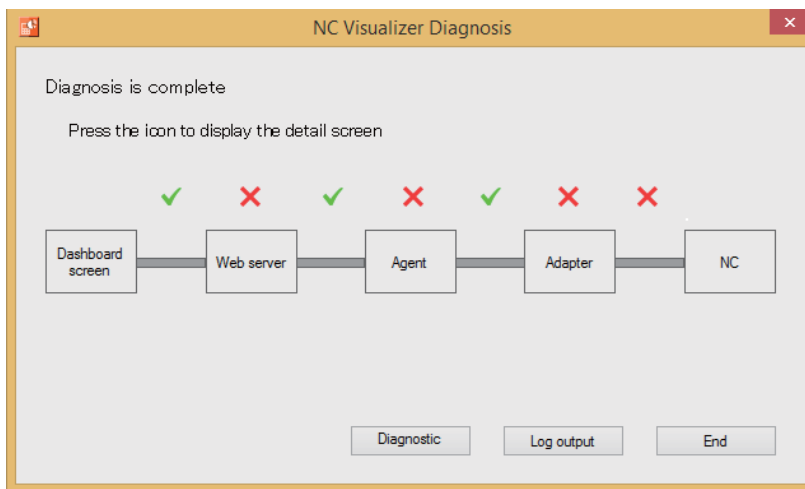
No.	Item	Details
(1)	Diagnosis result between the dashboard screen and a web server	Displays the diagnosis result between the dashboard screen and a web server. When no problem and warning are detected, a green check mark is displayed. When any problem is detected, a red "x" mark is displayed. When any warning is detected, an yellow "Δ" mark is displayed. When both problem and warning are detected, the "x" mark is displayed preferentially. Pressing the display area of each mark to display the diagnosis result details screen (refer to 8.1.4).
(2)	Diagnosis result of the web server	Displays the diagnosis result of the web server. Explanation of display contents are the same as (1).
(3)	Diagnosis result between the web server and the Agent	Displays diagnosis result between the web server and the Agent. Explanation of display contents are the same as (1).
(4)	Diagnosis result of the Agent	Displays the diagnosis result of the Agent. Explanation of display contents are the same as (1).
(5)	Diagnosis result between the Agent and the Adapter	Displays diagnosis result between the Agent and the Adapter. Explanation of display contents are the same as (1).
(6)	Diagnosis result of the Adapter	Displays the diagnosis result of the Adapter. Explanation of display contents are the same as (1).
(7)	Diagnosis result between the Adapter and an NC	Displays diagnosis result between the Adapter and an NC. Explanation of display contents are the same as (1).
(8)	Equipment list button	Displays the diagnostic equipment list screen. Pressing this button to display the device list screen (refer to 8.1.5) as a pop-up window.

No.	Item	Details
(9)	Log output button	Diagnosis starts by pressing this button. When this button is pressed, a standard Windows save file dialog is displayed. Select the directory and name the log file to save it.
(10)	End button	Terminates the NC Visualizer diagnosis tool.
(11)	× button	Terminates the NC Visualizer diagnosis tool.

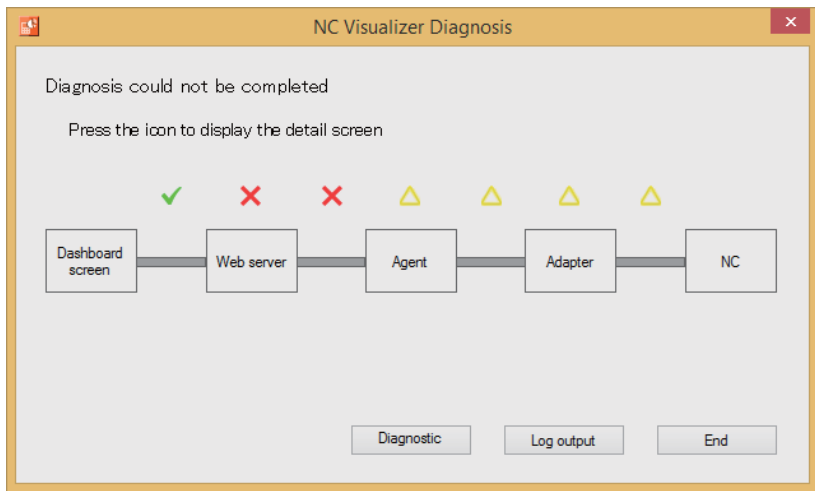
(a) The diagnosis result screen when no problem is detected.



(b) The diagnosis result screen when any problem is detected.



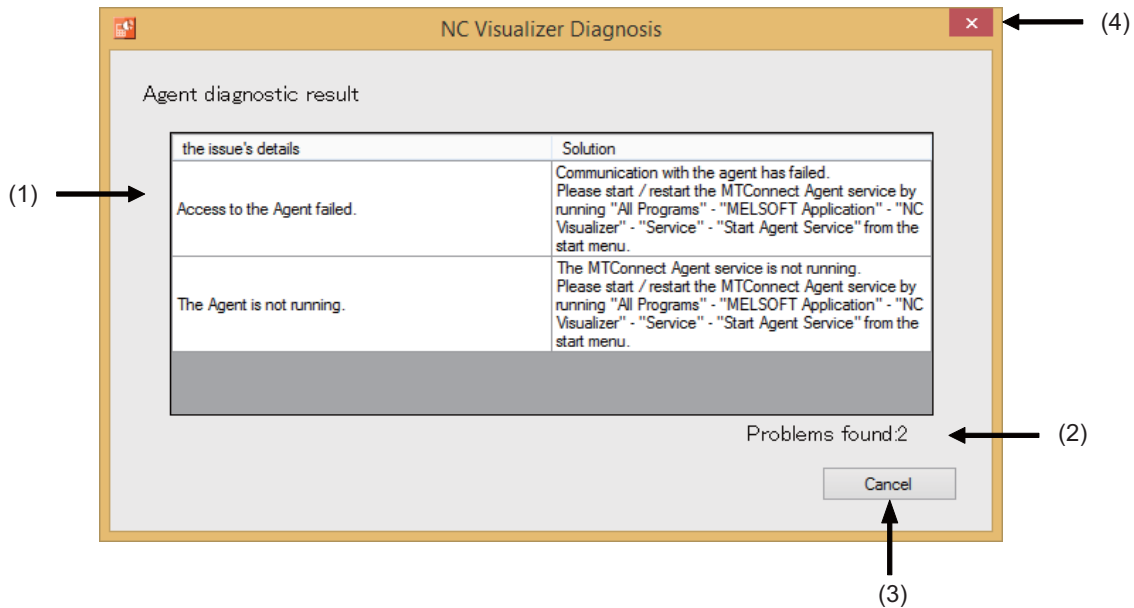
- (c) The diagnosis result screen when the diagnosis is not ended correctly.



\* In this case, all the results after any problem is detected are displayed with yellow marks.

### 8.1.4 Diagnosis Result Details Screen

Displays the point where problems is detected by the diagnosis and the solutions for them.

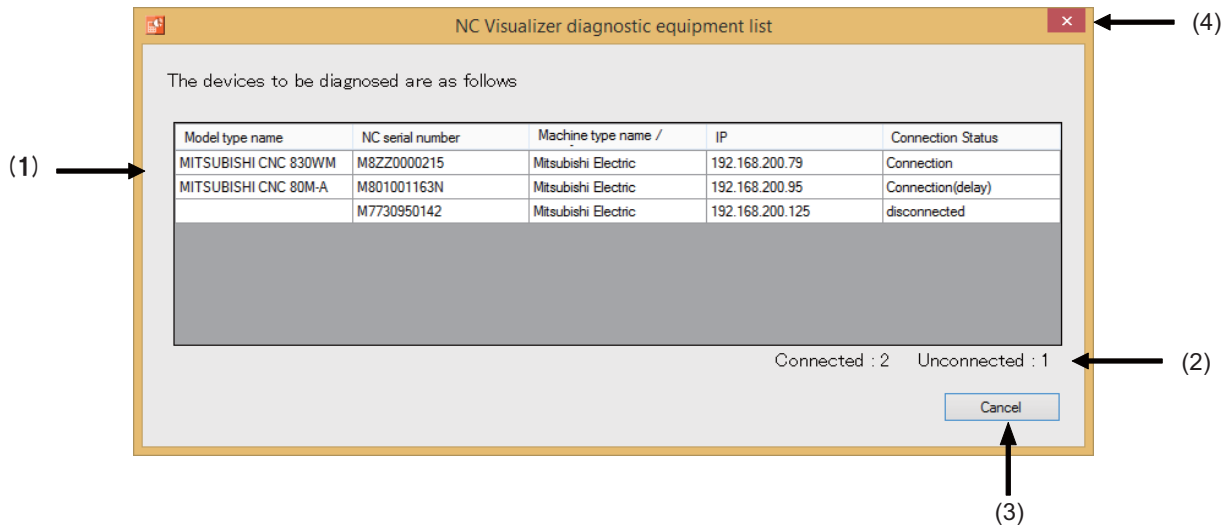


#### Display items

No.	Item	Details
(1)	List of problems and solutions	Displays the problems detected by the diagnosis and the solutions for them. For the contents to be displayed, refer to "8.3 Diagnosis Results".
(2)	The number of detected problems	Displays the number of detected problems in the point specified on the diagnosis results screen (refer to 8.1.3).
(3)	Cancel button	Pressing this button to close the diagnosis result details screen to return to the diagnosis result screen.
(4)	× button	Terminates the NC Visualizer diagnosis tool.

### 8.1.5 Diagnostic Equipment List Screen

This screen displays the list of diagnosed NCs and the communication status of them.



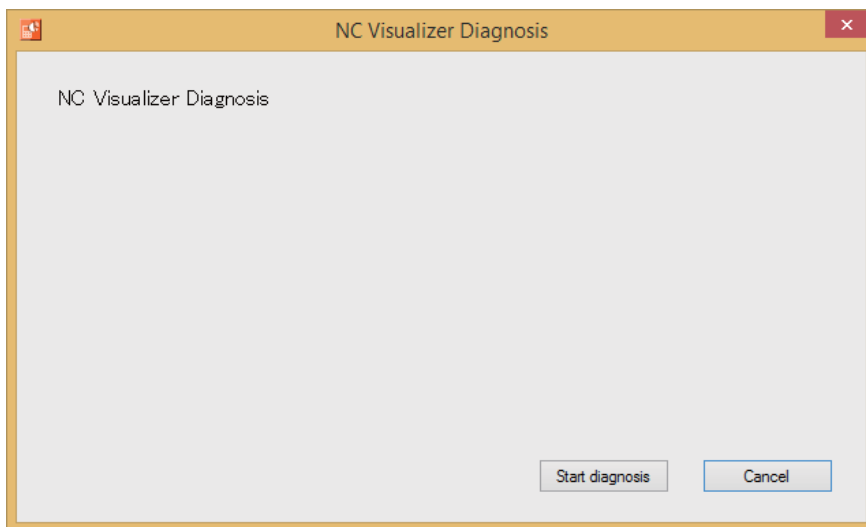
#### Display items

No.	Item	Details												
(1)	List of diagnosed NCs	Displays the list of diagnosed NCs and detailed information of them. The items to be displayed are as follows.												
		<table border="1"> <thead> <tr> <th>Item</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td>Model type name</td> <td>Displays the model type names of NCs. This column is blank when NC is not connected.</td> </tr> <tr> <td>Serial number of NCs</td> <td>Displays the serial numbers of NCs.</td> </tr> <tr> <td>Machine type name/ Manufacturer</td> <td>Displays the type names and manufacturers of NCs.</td> </tr> <tr> <td>IP</td> <td>Displays IP addresses of NCs.</td> </tr> <tr> <td>Connection status</td> <td>Displays connection status of NCs. Connection: The NC can be connected. Connection(delay): The NC can be connected, but communication speed is slow. disconnected: The NC cannot be connected.</td> </tr> </tbody> </table>	Item	Details	Model type name	Displays the model type names of NCs. This column is blank when NC is not connected.	Serial number of NCs	Displays the serial numbers of NCs.	Machine type name/ Manufacturer	Displays the type names and manufacturers of NCs.	IP	Displays IP addresses of NCs.	Connection status	Displays connection status of NCs. Connection: The NC can be connected. Connection(delay): The NC can be connected, but communication speed is slow. disconnected: The NC cannot be connected.
		Item	Details											
		Model type name	Displays the model type names of NCs. This column is blank when NC is not connected.											
		Serial number of NCs	Displays the serial numbers of NCs.											
		Machine type name/ Manufacturer	Displays the type names and manufacturers of NCs.											
		IP	Displays IP addresses of NCs.											
Connection status	Displays connection status of NCs. Connection: The NC can be connected. Connection(delay): The NC can be connected, but communication speed is slow. disconnected: The NC cannot be connected.													
(2)	The number of connected/unconnected NCs.	Displays the number of connected or unconnected NCs among diagnosed NCs.												
(3)	Cancel button	Closes the diagnostic equipment list screen												
(4)	× button	Closes the diagnostic equipment list screen												

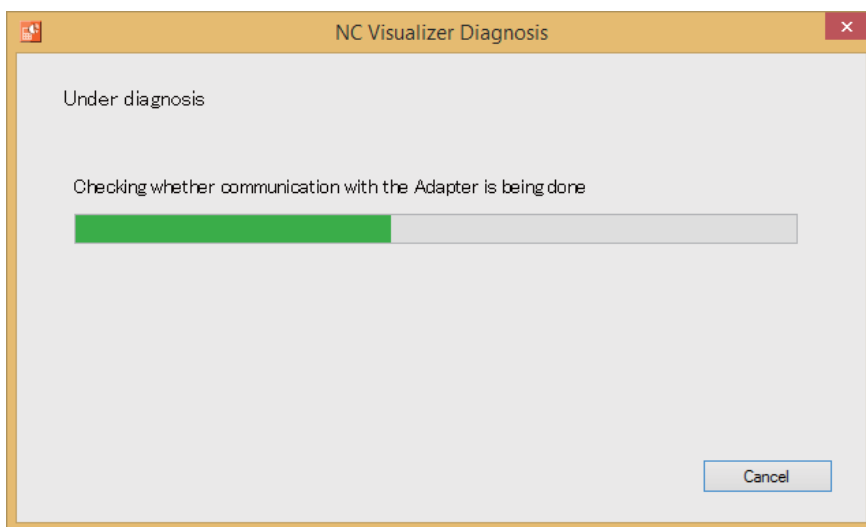
## 8.2 Operating Procedures

### 8.2.1 Starting the Diagnosis

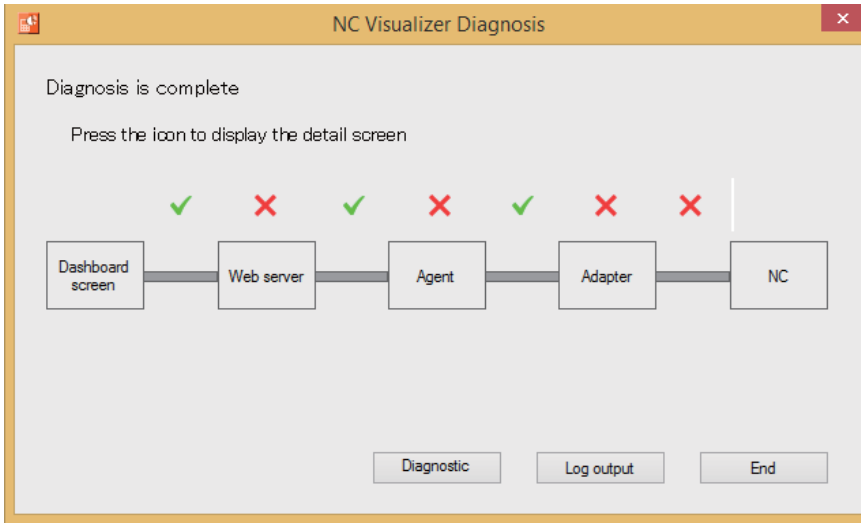
- (1) Click [Start diagnosis] button on the start diagnosis screen.



- (2) The diagnosis starts, wait until its process is completed.



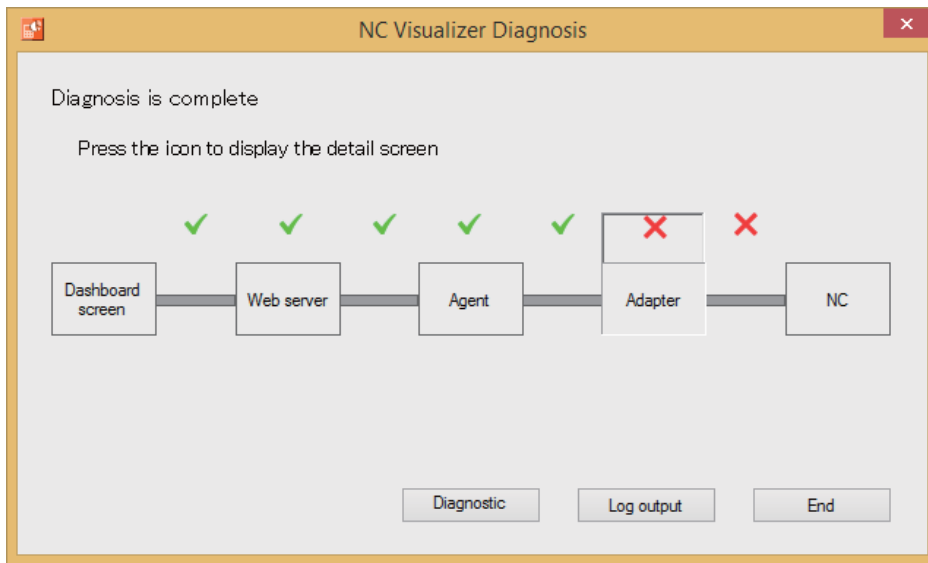
- (3) The diagnosis result screen is automatically displayed after the diagnosis is completed. When any problem is detected, a red "x" mark is displayed on the point where the problem is occurring. When no problem is detected, a green check mark is displayed.



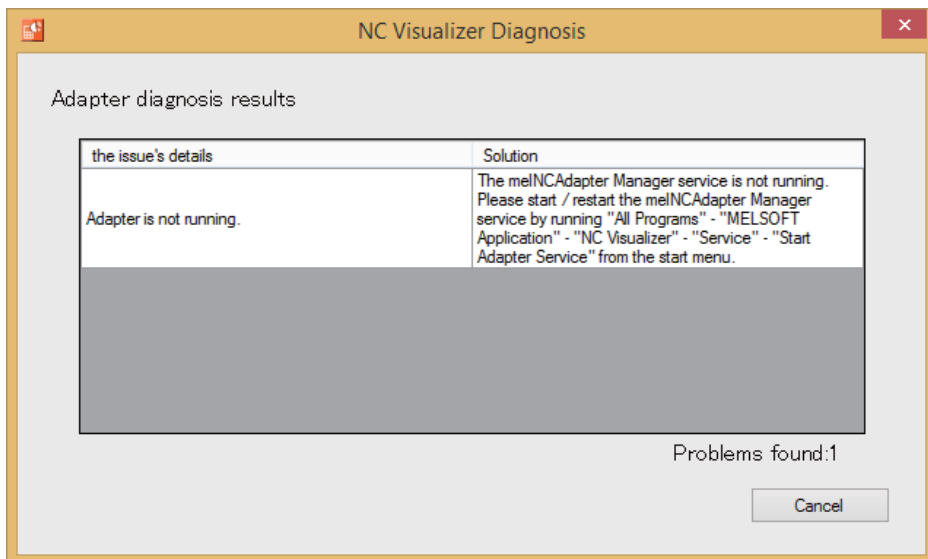


### 8.2.2 Displaying Diagnosis Result Details

- (1) To display the diagnosis result details, hover the cursor on the area where the red "x" mark is displayed and click there.

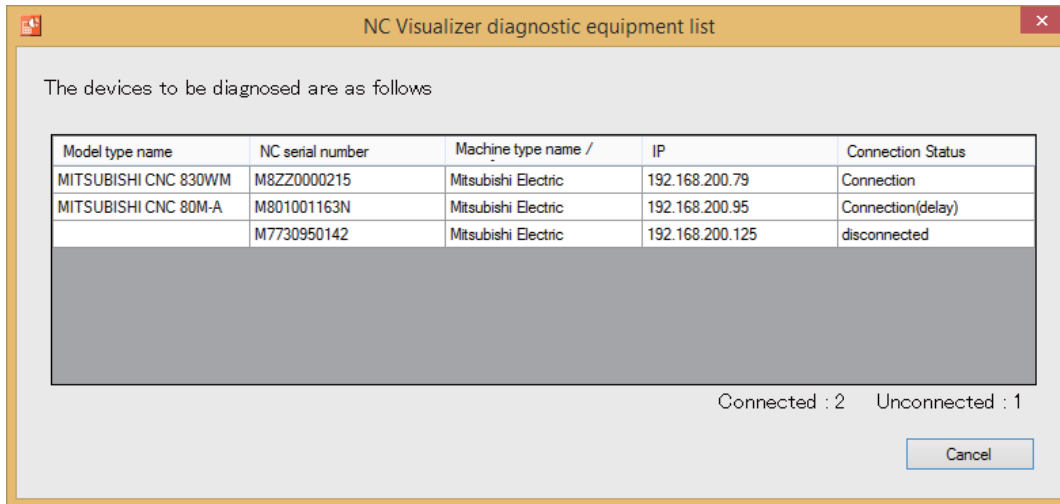


- (2) The problems and solutions of the specified point are displayed. Click [Cancel] button to return to the diagnosis result screen.



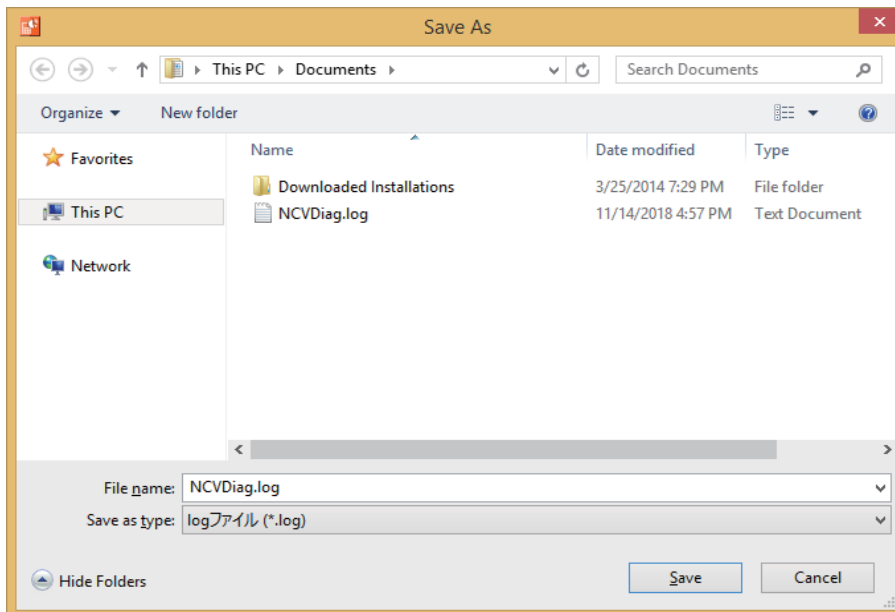
### 8.2.3 Displaying the Diagnostic Equipment List

- (1) Click [Diagnostic] button on the diagnosis result screen to display the list of NCs to be diagnosed. When the NC to be diagnosed can be connected, "Connection" is displayed in "Connection Status" column. When the NC cannot be connected "disconnected" is displayed in the column.



### 8.2.4 Outputting the log file

- (1) When [Log output] button is pressed, a standard Windows save file dialog is displayed. Select the directory and name the log file to save it.



## 8.3 Diagnosis Result

Error messages and the details of the messages are as follows.

"Displayed mark" is explained in "8.1.3 Diagnosis Result Screen".

"Number of the point" is explained in "8 NC Visualizer Diagnosis Tool".

Error message	Details	Displayed mark	Number of the point
NC Visualizer is not running.	The NC Visualizer service is not running. Please start/restart the NC Visualizer service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start NC Visualizer Service] from the start menu.	×	(2)
Hardware key is not installed.	Please install hardware key of NC Visualizer.	×	(2)
Failed to access the web server.	Communication with NC Visualizer has failed. Please start/restart the NC Visualizer service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start NC Visualizer Service] from the start menu.	×	(2)
Access to the DB failed.	Communication with the DB has failed. Please start/restart the NC Visualizer service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start NC Visualizer Service] from the start menu.	×	(2)
Access to the Agent failed.	Communication with the agent has failed. Please start/restart the meINCAgent service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start Agent Service] from the start menu.	×	(3)(4)
The data obtained from the DB is not consistent.	There is no consistency of data acquired from Agent and acquired from DB. Please start/restart the NC Visualizer service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start NC Visualizer Service] from the start menu.	×	(2)
Agent communication diagnostic failed.	Agent communication diagnosis has failed. Please start/restart the meINCAgent service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start Agent Service] from the start menu. Also check that the LAN cable of the PC running the Agent is connected and check the network setting.	×	(3)
The Agent is not running.	The meINCAgent service is not running. Please start/restart the meINCAgent service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start Agent Service] from the start menu.	×	(4)
We could not verify communication between Agent and Adapter.	Communication between Agent and Adapter has failed. From the start menu [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start Agent Service] and [All Programs] - [MELSOFT Application] - [NC Visualizer] - [service] - [Start Adapter Serv] to start/restart the meINCAgent service/meINCAadapter Manager service.	×	(5)

Error message	Details	Displayed mark	Number of the point
The communication diagnosis of the adapter failed	The communication diagnosis of Adapter has failed. Please start / restart the melNCAdapter Manager service by running [All Programs] - [MELSOFT Application] - [Service] - [Start Adapter Service] from the start menu. Also check whether the LAN cable of the PC running the Adapter is connected and check the network setting.	x	(5)
Adapter is not running.	The melNCAdapter Manager service is not running. Please start/restart the melNCAdapter Manager service by running [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start Adapter Service] from the start menu.	x	(6)
Communication with the NC has failed.	Please check that the NC power is on.	x	(7)
There is a problem with the Agent setting.	There is a problem with Agent setting. Execute [All programs] - [MELSOFT application] - [NC Visualizer] - [NC Visualizer setting] from the start menu and reset the Agent setting using the device information registration tool.	x	(4)
There is a problem with the adapter setting.	There is a problem with the setting of the adapter. Execute [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and reset the Adapter setting using the device information registration tool.	x	(6)
There is a problem with the NC Visualizer setting.	There is a problem with the setting of NC Visualizer. Execute [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and reset the NC Visualizer setting using the device information registration tool.	x	(2)
NC information is not registered in the setting file.	The device information to be connected to the setting file is not registered. Or, the setting file is not created. Execute [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and reset the NC registration using the device information registration tool.	x	(2)(4)(6)
The NC information of the setting file is inconsistent.	There is device information registered only in some setting files. Execute [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and reset the NC registration using the device information registration tool.	x	(2)(4)(6)
A directory necessary for NC Visualizer display does not exist.	The NC Visualizer directory does not exist. Please reinstall NC Visualizer.	x	(2)(4)(6)
A file necessary for NC Visualizer display does not exist.	NC Visualizer file does not exist. Please reinstall NC Visualizer.	x	(2)(4)(6)
The capacity of the drive is low.	The capacity of the drive used by NC Visualizer is getting low. Please delete unnecessary files etc and increase the capacity of the drive.	△	(2)
Windows Firewall exception setting is disabled.	Windows Firewall exception setting necessary for communication with each PC is disabled. Please enable Windows Firewall exception setting of each executable file	x	(2)(4)(6)

Error message	Details	Displayed mark	Number of the point
Windows Firewall incoming rule does not have port number or IP address permission.	There is no permission of the Windows firewall reception rule required for communication with the Web server. Please add the IP address of the Web server port number or the PC (dashboard screen) to be connected to the Web server to the reception rule of the PC on which the Web server is running.	×	(1)
Windows Firewall incoming rule does not have port number or IP address permission.	There is no permission of the Windows firewall reception rule required for communication with the Agent. Please add the Agent port number to the reception rule of the PC on which the Agent is running, or add the IP address of the PC (Web server) connected to the Agent	×	(3)
The port number being used is blocked by the reception rule of Windows Firewall.	The port number necessary for communication with the Web server is blocked by the Windows Firewall reception rule. Please unblock the web server port number from the reception rule of the PC on which the web server is running.	×	(1)
The port number being used is blocked by the reception rule of Windows Firewall.	The port number necessary for communication with the Agent is blocked by the reception rule of Windows Firewall. Please unblock the Agent port number from the reception rule of the PC on which the Agent is running.	×	(3)
Network is not connected.	There is no valid network. Confirm that the LAN cable is connected and check the network setting.	×	(2)
The port number 8080 of the Web server is duplicated.	The port number 8080 for connecting to the Web server is the same as the port number used by another application. Please stop other applications using port number 8080 or use port numbers other than 8080.	×	(2)
The port number of Agent is duplicated.	The port number for connecting to the Agent is the same as the port number used by another application. Run [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and change the port number to be used for the Agent using the device information registration tool.	×	(4)
Adapter port number is duplicated.	The port number for connecting to the adapter is the same as the port number used by another application. Run [All Programs] - [MELSOFT Application] - [NC Visualizer] - [NC Visualizer Setting] from the start menu and change the port number used for the Adapter using the device information registration tool.	×	(6)
The communication speed with NC is decreasing.	The communication speed with NC is decreasing.	△	(7)
System sleep/pause time is set. If the PC goes to sleep/pause, communication will be interrupted.	Time into sleep or pause is set in the PC. When the PC goes to sleep or pause, communication will be interrupted. Cancel the setting.	△	(2)(4)(6)

Error message	Details	Displayed mark	Number of the point
The diagnostic process could not be executed normally.	The diagnostic process could not be executed normally. From the start menu, select [All Programs] - [MELSOFT Application] - [NC Visualizer] - [service] - [Start NC Visualizer Service], [All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] Launch/re-start the NC Visualizer service/meINCAgent service/meINCAadapter Manager service by running [Start Agent Service] and [All Programs] - [MELSOFT Application] - [NC Visualizer] - [service] - [Start Adapter Service]. Please start up and try diagnosis again.	△	(1)(2)(3)(4) (5)(6)(7)

\* All relevant files are displayed under [MELSOFT Application] folder with Windows 10.

(Example) Location for the NC Visualizer start-up tool

Windows7: [[All Programs] - [MELSOFT Application] - [NC Visualizer] - [Service] - [Start NC Visualizer Service]

Windows10: [MELSOFT Application] - [Start NC Visualizer Service]



## Revision History

Date of revision	Manual No.	Revision details
May 2018	IB(NA)1501542-A	First edition created.
Apr. 2019	IB(NA)1501542-B	Updated the contents corresponding to S/W version A1 of NC Visualizer.  Added the following chapters: - 7 Device Information Registration Tool - 8 NC Visualizer Diagnosis Tool  Changed the structure of the following chapter: - 5 Installation and Setup  Also revised throughout the manual and corrected wrong indications, etc.



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MITSUBISHI CNC

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MODEL	NC Visualizer
MODEL CODE	100-670
Manual No.	IB-1501542